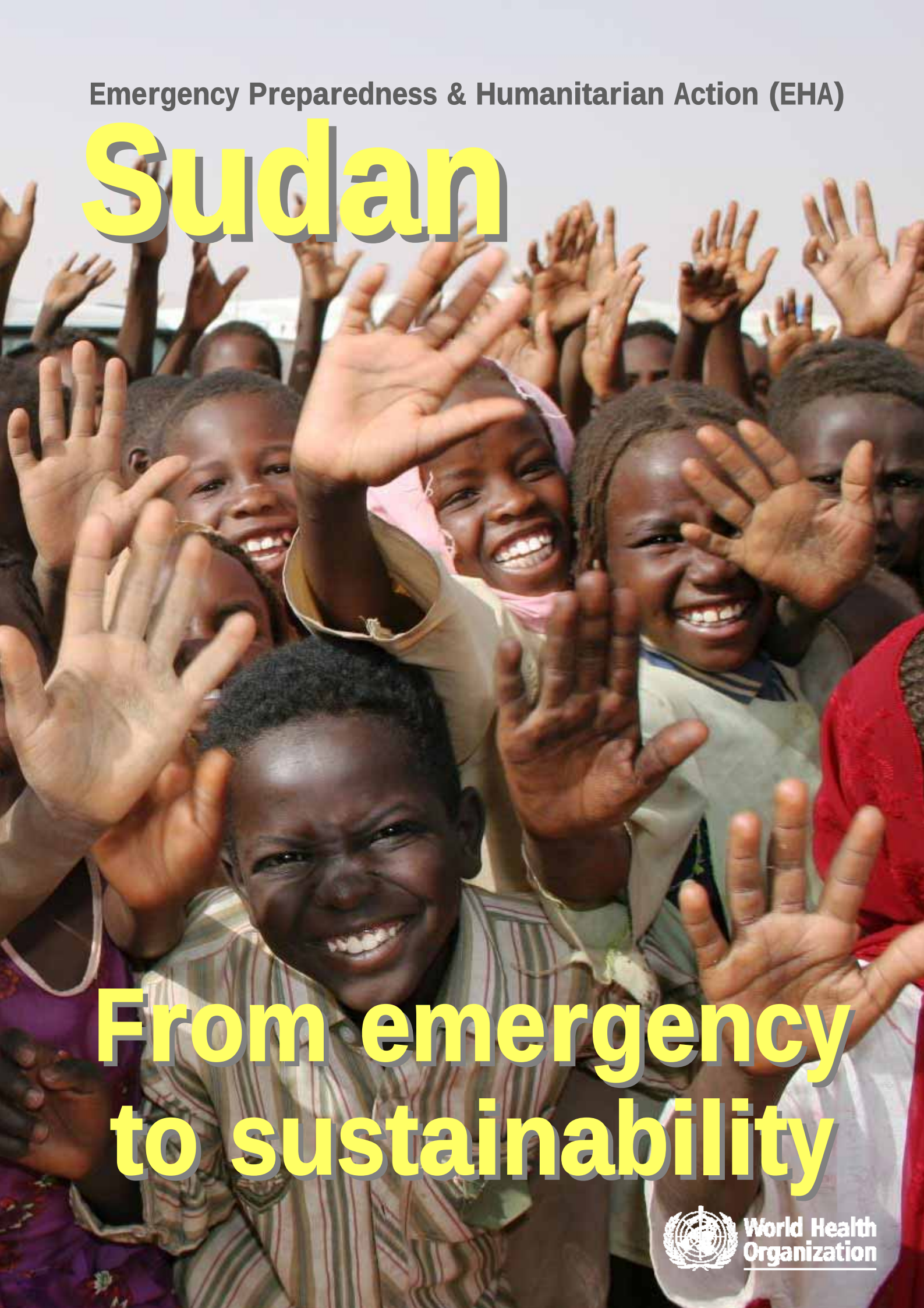
Emergency Preparedness & Humanitarian Action (EHA)

Sudan



From emergency to sustainability

World Health Organization

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FOREWORD OF THE WHO REPRESENTATIVE IN SUDAN

The **Office of the Representative of the World Health Organization in Sudan** (WHO Sudan) wishes to express its thanks and appreciation for the continuing generous support of all donors to its Emergency and Humanitarian Action programme (EHA). Your contributions have enabled the Organization, in partnership with the Federal and State Ministries of Health and partners, to continue strengthening health care services and protecting the health of vulnerable people across Sudan.

During 2006 and 2007, WHO Sudan and health sector partners faced new and complex challenges. Severe and widespread flooding and associated outbreaks of acute watery diarrhoea/ cholera and meningitis, tested emergency response and surveillance mechanisms to the full. Thanks to thorough preparedness plans, facilitated by donor support, these crises were effectively controlled and contained, protecting the lives of hundreds of thousands of people. Preparing for new health crises, such as a possible outbreak of avian influenza, remains an important and ongoing priority.

Internally displaced persons and refugees returning to their homes following the 2005 peace agreement bring new burdens and challenges to the health system. Meanwhile, escalating conflict and deteriorating security in Darfur threaten humanitarian work across that region. Some health sector partners were forced to withdraw and halt interventions. WHO is trying to fill these gaps and support non-governmental organizations and agencies that continue in the field. Rehabilitation of and support for hospitals continue to enable internally displaced people and conflict-affected populations in Darfur to access crucial secondary care.

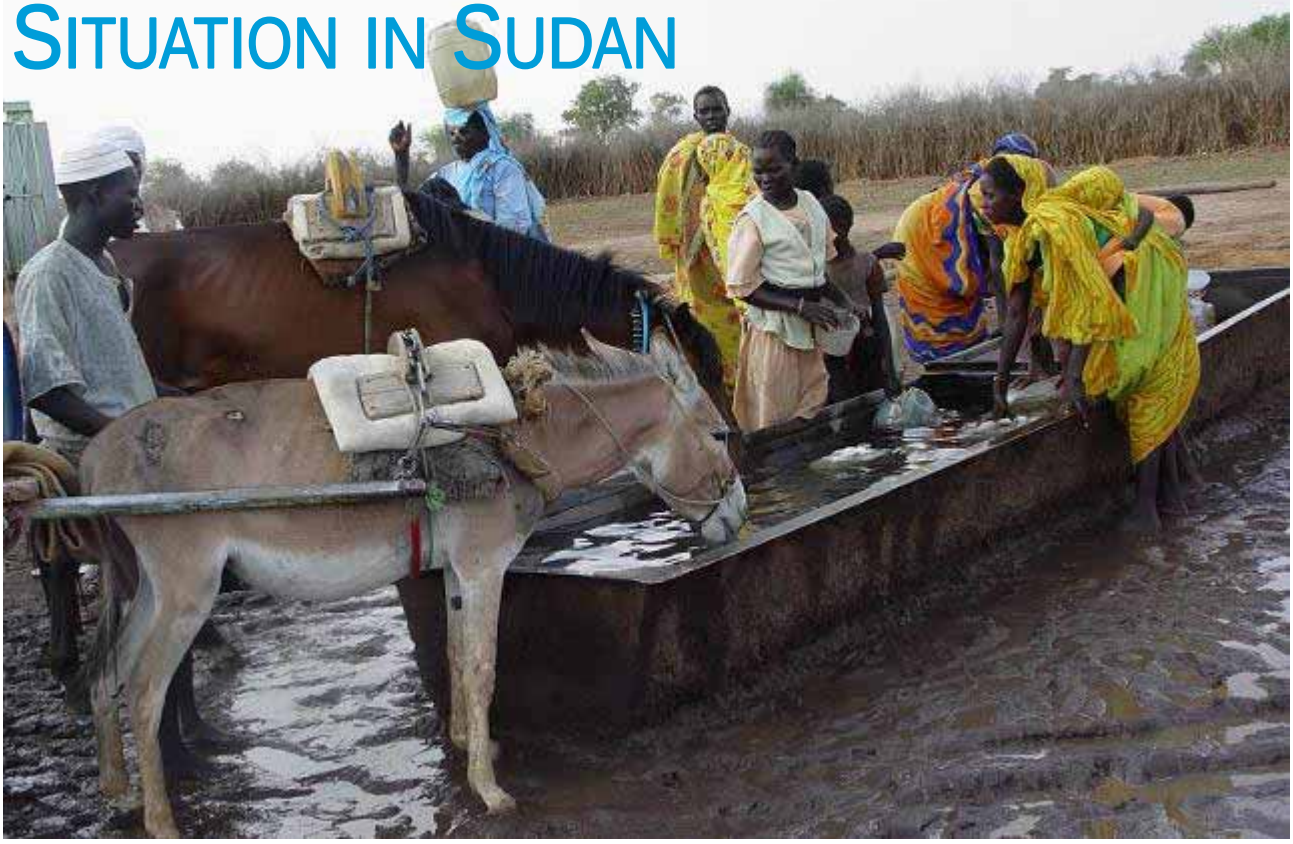
In 2006 and 2007, WHO deployed additional outreach teams to the conflict-affected Blue Nile State and Abyei Area, and continued to build upon its operations from its five field offices in Darfur, South Kordofan and Eastern Sudan. Programme activities and collaborative initiatives were also expanded for the early recovery of the health system; notably, the Integrated Community Based Development Initiative was launched in 2007 jointly by WHO, UNICEF, FAO, UNFPA and UNDP in South Kordofan.

This report will describe, for the benefit of the donors who support the EHA programme in Sudan, the Organization's activities during 2006 and 2007. During this period, WHO not only built up the capacity of health partners to prepare and respond to emerging public health threats, but also ensured coverage of health services for vulnerable and conflict-affected people. The report aims to outline key activities, achievements, challenges and future priorities to ensure that all partners and donors are kept well-informed of WHO Sudan's work.

Once again, we extend to you our gratitude for your continued support and hope that our partnership in protecting the health of vulnerable people will grow stronger in the coming years.

Dr Mohammad Abdur Rab
WHO Representative in Sudan

1. WHO AND THE HUMANITARIAN SITUATION IN SUDAN



1.1 Introduction

Sudan is currently facing a complex and far-reaching humanitarian crisis precipitated by more than 20 years of civil war. The situation is exacerbated by the ongoing violent conflict in the western region of Darfur and by environmental hazards, such as the severe flooding of the Nile River and its tributaries witnessed in 2007. These crises – and the mass displacement, food insecurity and infrastructural damage associated with them – have serious implications for the health of the population and present enormous challenges to those working to prevent and control outbreaks and other health-related emergencies, and to deliver effective and quality health care to the people of Sudan.

The World Health Organization (WHO) is working with the Federal and State Ministries of Health and the other health partners across Sudan to respond to emergencies and strengthen health systems and services in the country. This report describes key WHO activities and achievements in Northern Sudan between January 2006 and December 2007. It also outlines future priorities and directions envisaged for the 2008-2009 biennium.[1]

1.2 Overall situational analysis

The Comprehensive Peace Agreement (CPA) between North and South Sudan signed on 9 January 2005 brought an end to more than 20 years of civil war and established a new transitional administration in Sudan, the National Government of Unity. According to the CPA protocols and agreements, a six-year interim period

[1] Please note that WHO activities described in this report do not include the programme activities falling under the WHO Southern Sudan office, based in Juba, Southern Sudan.

will be followed by a referendum in which the population of South Sudan will decide between continued unity with North Sudan, or secession. In areas that are located on the boundary between North and South – *transitional* areas – governing power is shared by the Sudan People's Liberation Movement (SPLM) and Government of Sudan during the interim period.

Peace in Sudan compelled all humanitarian actors in the country to begin shifting activities from emergency response towards early recovery and development of the health system. In also raised the expectation that many of those displaced by the conflicts in the South would return to their home areas. Managing the return and re-integration of internally displaced persons as well as refugees from neighbouring countries has therefore become an important focus of humanitarian work in North Sudan.

Continued conflict in Darfur, however, has left that region in a state of ongoing humanitarian crisis and emergency. Negotiations surrounding the May 2006 Darfur Peace Agreement (DPA) failed to produce a sustainable solution, and violence continues to escalate. In 2006 and 2007, attacks on humanitarian staff and assets hampered humanitarian work. Table 1 sets out the major health emergencies in Northern Sudan in 2006-2007.

Internal displacement

Over 6 million people have been displaced as a result of past and ongoing

Table 1: Major health emergencies in Northern Sudan 2006-2007

Month and year	Health emergency	Population affected
January - February 2006	Follow up of yellow fever outbreak	605 cases in South Kordofan
January – June 2006	Ongoing conflict in Darfur	200,000 displaced people[3]
April 2006	Multifocal outbreak of meningitis	6500 cases reported in 13 states
April 2006	Outbreak of AWD/cholera	10,000 cases reported across all northern states of Sudan
July – October 2006	Ongoing conflict in Darfur	120,000 displaced people
October – December 2006	Ongoing conflict in Darfur	160,000 displaced people
By end 2006, the total number of people affected by the conflict reached nearly 3.9 million including over 2 million internally displaced persons.		
January – March 2007	Ongoing conflict in Darfur	160,000 displaced people
March – June 2007	Outbreak of meningitis	2600 cases across 13 states of northern Sudan
April – July 2007	Ongoing conflict in Darfur	90,000 displaced people
July 2007	Severe flooding affects large parts of the country	500,000 people across Sudan
October 2007	Outbreak of rift valley fever	700 cases in 7 northern states
July – October 2007	Ongoing conflict in Darfur	190,000 displaced people
October – December 2007	Ongoing conflict in Darfur	40,000 displaced people
By end 2007, the total number of people affected by the conflict in Darfur reached 4.2 million including 2.4 million internally displaced persons.		

[2] Sudan IDP and refugee returns, reintegration operations –statistical overview 2004-2007, UNMIS 2008.
[3] Darfur Humanitarian Profiles, Office of UN Deputy Special Representative of the UN Secretary-General for Sudan – UN Resident and Humanitarian Coordinator.
[4] Darfur Humanitarian Profiles 2007.

conflicts in South and West Sudan. The United Nations Mission in Sudan estimates that 1.9 million formerly displaced people have returned to their place of origin in the South between 2004 and 2007[2]. While some IDPs have also opted to stay in their place of displacement, including camps and informal settlements, agencies working on the ground continue to observe population movements in both directions according to seasonal factors and employment opportunities. A population census of the country scheduled to take place in 2008 will provide a clearer picture of the situation.

By the end of 2007, there were 4.2 million conflict-affected persons including 2.4 million internally displaced as a result of the ongoing conflict in Darfur.[4]

Conditions in most camps for internally displaced persons and settlements are difficult; housing and sanitation are poor, malnutrition rates high and in many areas the water is unsafe to drink. Consequently internally displaced persons are constantly at high risk of communicable disease and other health problems. The movement of returnees presents new challenges for health services located en route as well as in the areas of return. Transitional areas, including Abyei Area, South Kordofan State and Blue Nile State, are particularly affected by the arrival or passage of returnees in terms of heightened risk to health and pressure on health services.

Flooding

Heavy rains in Ethiopia and Sudan and the consequent flooding of the Nile River during the summer of 2007 affected over 500,000 people and resulted in the destruction of thousands of homes in Central and Eastern Sudan, much of Northern Sudan, and even Khartoum State. The health risks associated with floods are manifold and include injury and loss of life, contamination of drinking water, overflow of latrines and mismanagement of solid waste and associated increased risk of communicable vector-borne and water-borne disease. The mass displacement and deteriorating sanitation and hygiene practices of communities following a flood also increase the risk of outbreaks of communicable disease. Finally, destruction or damage to existing health facilities, equipment or supplies obstruct health service delivery.

Health status

A sign of this high risk context, health indicators in Sudan are among the poorest in the Eastern Mediterranean Region (see Table 2). Communicable diseases, in particular malaria, diarrhoeal illnesses and acute respiratory infections, are the leading causes of morbidity in Northern Sudan, exacerbated by widespread malnutrition. In the Darfur region, there is also an increasing burden of weapon- and conflict-related injury. Maternal health is poor across Northern Sudan, and will be a key priority for future programmes.

Health system response to health emergencies and early recovery of the system

Protracted conflict and associated limited infrastructure has rendered the country's

Table 2: Selected health indicators for 2006

Indicator	Value (all of Sudan)	Value (North Sudan)
Neonatal mortality rate (per 1000 live births)	41	35
Under-five mortality rate (per 1000 live births)	112	102
Underweight prevalence (% below – 3 standard deviations)	9.4	*Na*
Stunting prevalence (% below – 3 standard deviations)	15.2	*Na*
Maternal mortality ratio (per 100,000 live births)	1107	*Na*

Source: Sudanese Household Health Survey 2006 (SHHS)

2. DONOR SUPPORT FOR EHA

In 2006 and 2007 WHO undertook activities to strengthen the health sector's capacity to prepare and respond to emergency health situations in Sudan and in some regions, begin the process of early recovery.

Donor support played an important role in the implementation of the Organization's activities, through which the international community made a substantial contribution to strengthening the health sector's response.

During that period, WHO received US$ 23,205,627 for health interventions within the EHA programme in Sudan from extra budgetary sources.

WHO received 30% of its extra budgetary contributions from the United Nations Common Humanitarian Fund (CHF), 23% from the European Commission Humanitarian aid Office (ECHO), 17% from the United Nations Central Emergency Response Fund (CERF), 12% from the United States Aid in Development (USAID) and the rest from Finland (6%), Ireland (4%), Italy (4%), Switzerland (2%) and Norway (1%) (See Figure 2).

By region, Darfur received the highest contribution at 53% of the total extra budgetary funds for EHA. WHO received 23% for nationwide interventions including responses to specific outbreaks and emergencies, including the 2007 flooding. South Kordofan received the next highest contribution at 5%, followed by Khartoum and Northern States (5%), Eastern States (4%), national programmes (4%), Abyei (3%) and Blue Nile State (2%) (See Figure 3).

Figure 1: Breakdown of extra budgetary contribution by donor

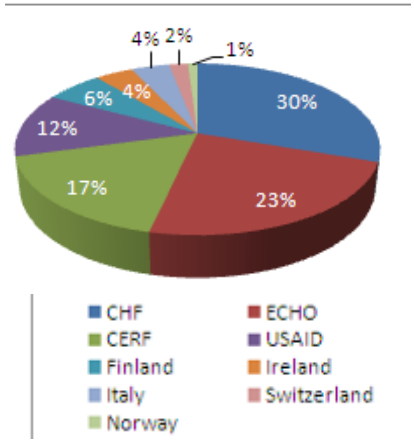


Figure 2: Breakdown of extra budgetary contribution by geographical area

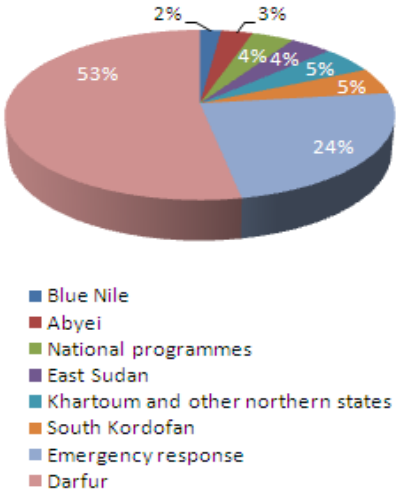


Figure 3: WHO's donors to the EHA programme in Sudan, 2006-2007

WHO donors in 2006-2007

- Common Humanitarian Fund[1] (CHF)
- Central Emergency Response Fund (CERF)
- European Commission Humanitarian aid Office (ECHO)
- Government of Finland
- Italian Cooperation
- United States Agency for International Development (USAID)
- Government of Switzerland
- Government of Norway
- Government of Ireland

[1]Contributors to CHF in 2006-2007 included DfID, Sweden, Spain, Norway, the Netherlands, Denmark and Ireland

3. WHO RESPONSE: HEALTH ACTION IN CRISES

3.1 Introduction

WHO's overall goal in Sudan is to reduce excess mortality and morbidity from preventable causes, in particular from communicable diseases, and assist the country to make sustainable progress towards the development of the health of its people.

To achieve this aim, WHO provides technical and operational support to the Federal Ministry of Health to:

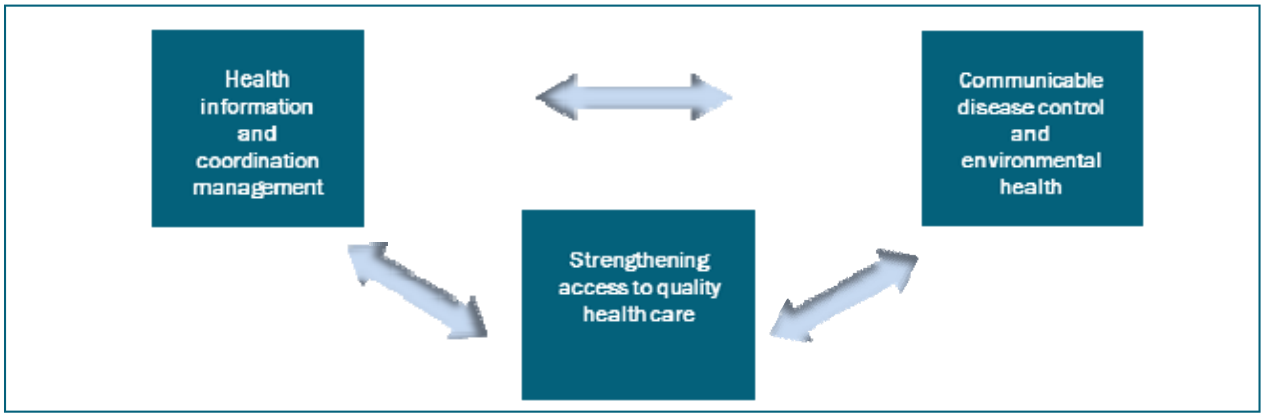
- Strengthen the capacity of emergency prevention, preparedness and response mechanisms
- Strengthen the health system, including quality of services, capacity-building and health information sharing
- Create an environment in which improved health can be sustained in the long term

To ensure that interventions are effective and sustainable, WHO Sudan uses an integrated approach, working to strengthen the following interrelated core technical areas or "operational pillars" (See figure 4):

- Health information and coordination management
- Access to health care services, including primary and secondary health care
- Communicable disease control and environmental health

Each operational pillar will be addressed in turn.

Figure 4: WHO's inter-related operational pillars



3.2 Health information and coordination management

Responding to the complex health problems and emergencies of a country as vast and challenging as Sudan requires rapid and effective coordination and communication between all actors, whether the Federal Ministry of Health, the UN agencies or the non-governmental organizations. A key component of the coordination effort is the availability of accurate and up-to-date information to plan timely and effective responses to emergency health situations. WHO, with the support of donors, plays a leading role in coordinating responses and interventions and in disseminating accurate and timely information.

Coordination and information-sharing operate at both central and state level. At the national level, health partners share progress on ongoing activities to ensure coordinated nationwide interventions, make strategic policy decisions and agree on guidelines and advocacy strategies.

At the regional level, regular health coordination meetings keep partners informed on activities and progress, providing a forum for joint operational decision-making and enhancing local ownership of programmes. WHO and health partners carry out regular and comprehensive assessments of health facilities, ongoing activities, and geographical coverage of health services to identify gaps and needs and plan interventions. Localized task forces at the state level coordinate the implementation of specific interventions or monitor, collect and share information about specific health risks. In 2006 and 2007, local task forces were instrumental in coordinating primary health care, including reproductive health interventions, communicable disease control and responses to outbreaks across the country.

WHO's role in coordination and information-sharing includes:

- **Carrying out overall coordination** of all health-related matters within the UN System
- **Ensuring good partnership** and collaboration between health partners in emergencies
- **Ensuring the continuity of health provision** dependent on temporary health centres set up by non-governmental organizations
- **Disseminating** relevant and appropriate information and guidelines
- **Establishing functioning health information and surveillance systems**
- **Assessing health system** coverage and performance through monitoring and assessment of health care facilities
- **Identifying gaps** in terms of kinds of services available and health care coverage and access
- **Capacity building** and training in how to collect, analyze and use data
- **Ensuring** that information and activities are made known to the public

Examples of best practice guidelines and training manuals produced in 2006 and 2007 include:

- National guidelines for public health disaster management
- Integrated Management of Childhood Illness package adapted to the emergency context in Darfur
- Fact sheet on meningitis
- Case management of dengue fever and outbreak control

To encourage ownership of programmes and initiatives, WHO employs a participatory sectoral coordination approach to develop plans that address the concerns and needs of those involved in providing health services. WHO also ensures that the goals and strategies of health sector work plans are in harmony with longer-term recovery strategies developed by the Ministries of Health and the international community, such as the UN and Partners Work Plan for Sudan. Intersectoral collaboration to address all determinants of poor health is an increasingly important part of WHO's work. WHO conducts joint activities with the education and environmental sectors to optimize health partners' response to emergencies and outbreaks.

WHO produces regular situation reports, mortality and morbidity reports, fact sheets, best practice guidelines and technical documents and ensure their dissemination to stakeholders. Weekly and monthly situation and mortality and morbidity reports are available on the web site (www.emro.who.int/sudan). WHO Sudan's Monitoring and Evaluation (M&E) Unit conducts ongoing evaluation of programmes and interventions, developing quarterly matrices.

2007 Flood Response

The heavy rains and floods which hit many parts of Sudan in the summer of 2007 affected over 500,000 people and left more than 100,000 families homeless in 22 states. Roads, bridges as well as thousands of buildings were washed away or heavily damaged by the floods. Nearly 400 injuries and over 100 deaths were recorded.

The stagnant water, flooded latrines, polluted wells, destroyed water systems made flood victims highly vulnerable to malaria, diarrhoea and respiratory infections. Floods also aggravated outbreaks of diseases, such as in Gedarif and Kassala, in East Sudan, which were affected by AWD/cholera outbreaks.

Thanks to support from the Central Emergency Response Fund and the Common Humanitarian Fund, WHO and partners immediately undertook the following life-saving activities in the affected states:

WHO's flood response was supported by the Central Emergency Relief Fund and the Common Humanitarian Fund

- *In each state, health response coordination mechanisms were established for all partners*
- *In Gedarif, 18 Cholera Treatment Centres (CTCs) were reinforced with supplies for case management and water quality surveillance and the recruitment of public health officers*
- *29 training sessions on communicable diseases, vector control and water quality in East Sudan*
- *Essential medical drugs and supplies including diarrhoeal disease kits, clinical laboratory kits and water testing kits were distributed in flood-affected areas*
- *300,000 doses of emergency malaria treatment were supplied*
- *Insecticides were provided to contain and prevent spread of communicable diseases*
- *Technical support for water quality monitoring, surveillance and chlorination was initiated in collaboration with UNICEF and partners*
- *Community health education and hygiene promotion campaigns were conducted by community health workers in schools, clinics, and market places*
- *Indoor residual spraying was carried out in camps for internally displaced persons*

WHO provides an important link between the Federal and State Ministries of health, the UN-system and other NGOs and INGOS working the field; in transitional areas in particular, they play a key role in encouraging dialogue and the integration of programs and policies put forward by the different administrations operating in the regions. WHO initiated and facilitated discussions/meetings between the State Ministry of Health (SMOH) and the Secretariat of Health (SOH) in the former SPLM areas, to standardize health personnel training to enable better distribution of qualified health personnel.

Future directions and priorities in health information and coordination

During the next biennium, WHO will continue to lead the coordination of the health-related humanitarian effort in Sudan. The Organization will focus increasingly on scaling up its humanitarian activities to respond to early recovery needs, strengthening intersectoral collaboration and bringing together different determinants of health and aspects of health care in integrated programmes. Health information systems, such as the Early Warning Alert and Response System (EWARS) in Darfur, will be expanded to other regions and strengthened. Additional research, such as the large-scale nationwide survey on HIV/AIDS prevalence planned for 2008, will begin filling the considerable data gaps in Sudan.

An important priority for WHO in 2008-2009 will be improving coordination at the macro level between North and South Sudan and with neighbouring countries, such as Chad. There are already regular coordination meetings with Ethiopia and Eritrea in the east. Coordination across borders is essential for control of communicable diseases and potential pandemics such as avian influenza or polio.

3.3 Access to quality health care

Improving access to quality primary and essential secondary health care is a public health priority in Sudan, where many people have poor access to basic services. For example, 40% of the conflict-affected population in Darfur do not have access to primary health care or emergency hospital care, either because services are unavailable or physically inaccessible or because patients cannot afford to pay for care.

In health emergencies, WHO provides direct support for service delivery through the provision of essential drugs and supplies, capacity building of staff and urgent rehabilitation of health facilities to ensure access for vulnerable and conflict-affected people.

Key elements of the “access to health care” operational pillar are:

- **Technical and operational support** to improve access to and quality of primary and secondary health care
- **Health protection activities**, including immunization campaigns against communicable diseases, community-based initiatives, and the implementation of the Integrated Management of Childhood Illness (IMCI) initiative
- **Improving essential secondary care** through physical rehabilitation of hospitals, supply of essential medicines and capacity building of health personnel
- **Improving the management** of health facilities
- **Health promotion**, awareness-raising and hygiene education

WHO supports agencies offering primary health care services at the local level, through the provision of both essential supplies and technical assistance.

WHO is also implementing a hospital rehabilitation programme to ensure the provision of free essential secondary care to conflict-affected people in Darfur. In addition, WHO supports numerous health promotion and protection activities, including awareness-raising activities and immunization campaigns, and is a key partner for programmes seeking to improve child and maternal health in the long term through the Integrated Management of Childhood Illness initiative.

Expanded Programme of Immunization

The Joint Programme of Cooperation between WHO and the Federal Ministry of Health identified three main components within the Expanded Programme of Immunization (EPI). They are the eradication of polio, of measles and of other vaccine-preventable diseases, including diphtheria, TB, tetanus and hepatitis B. A series of National Immunization Days were organized in 2006 and 2007 and indicators for Diphtheria-Pertussis-Tetanus (DPT3) have improved. In 2006 the hepatitis vaccination programme was expanded to all northern states.

WHO supports the implementation of routine immunization and also provides supplies and operational support for emergency immunization campaigns when outbreaks occur. In 2006 and 2007, rapidly mobilized immunization campaigns played a key role in controlling outbreaks such as meningitis.

Future directions and priorities for strengthening health services

During the next biennium, WHO and health partners, with the support from donors, will develop and promote an integrated package of quality primary health care services including maternal and child health, reproductive health, nutrition and mental health. Technical and operational support for local non-governmental organizations and agencies running primary health care facilities in the field will continue.

An important aim will be to accelerate child survival by using integrated interventions at the primary health care level. Health education and awareness, and behavioural and social determinants, such as feeding habits or caregiving practices within the family, will be central elements. One issue is the question of how to assess behavioural change in an emergency context.

WHO will continue to strengthen routine immunization, maintain polio-free status and establish integrated preventable childhood diseases surveillance. The introduction of a new vaccine (Hib vaccine) in the form of *penta valent* vaccine is also a priority activity in 2008. prevention and treatment activities for HIV/AIDS

IMCI in Emergencies

In 2006/2007 IMCI case management guidelines on case management and communication with caretakers were adapted for the emergency context and used to train health professionals working in Darfur. Several NGOs and INGOs have adopted the approach and started training their staff in using the joint FMOH/WHO IMCI training manual in Darfur and South Kordofan. Training focused on:

- Key family practices affecting child health
- General child health and care and active identification of poor health
- Strengthening the reporting system at the community level.

In addition information, education and communication (IEC) materials on key family practices affecting the health of children under the age of five were provided by FMoH and disseminated to the general public and to school children.

Maternal and Child Health, in particular IMCI, will be a priority for WHO Sudan in the next biennium. Programmes will aim to increase coverage and quality of maternal health services in particular localities, by continuing capacity building activities, and supporting activities at family and community level. Strengthening health information systems, and management and coordination capacities will again be a priority.

3.3 Communicable disease control (CDC) and environmental health

Sudan falls within the African meningitis belt and yellow fever region. It is a tropical country with deserts and dry land in the north, and forest and marshland in most of the south. Yearly seasonal flooding occur from July-September, particularly along the river basins of the two Nile rivers. In 2006 and 2007, Northern Sudan experienced outbreaks of acute watery diarrhoea/cholera, meningitis, yellow fever and other viral haemorrhagic fevers such as dengue and rift valley fever.

Poor infrastructure such as the road network, large-scale population movements and inadequate number of trained health workers make the delivery of health services a huge challenge. As a result, the country remains at high risk of frequent outbreaks of communicable diseases, for which there is, in some cases, a high potential for regional and global spread.

In 2006-2007, malaria, acute respiratory infections and bloody diarrhoea were the main causes of morbidity and mortality in Northern Sudan, and the most common reasons why people sough medical attention. Figures 5 and 6 show that between 8 and 14 September 2007, acute respiratory infections and diarrhoeal diseases (other than bloody diarrhoea) were the leading cause of morbidity among children under five in Darfur, amounting each to 13% of all deaths.

WHO's response to communicable diseases

Since communicable diseases are the leading cause of morbidity and mortality in Sudan, a major aspect of WHO's work in the country is to strengthen disease surveillance and control, and rapid response and containment of outbreaks. In order to ensure that the most appropriate disease surveillance, there are currently two systems in place according to the geographical setting. Across Northern Sudan, a communicable disease surveillance system has been strengthened and expanded and is conducting regular surveillance and reporting of communicable diseases. Additionally the Early Warning Alert and Response System (EWARS) has been established in Darfur for timely detection and response to outbreaks and emerging public health issues.

Figure 5: Proportional morbidity: children under five, 8-14 September 2007, South Darfur

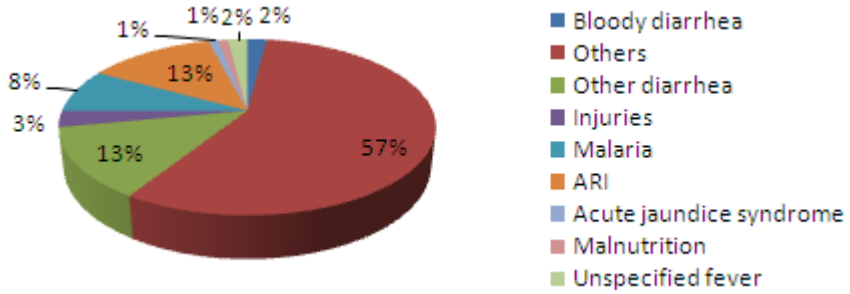
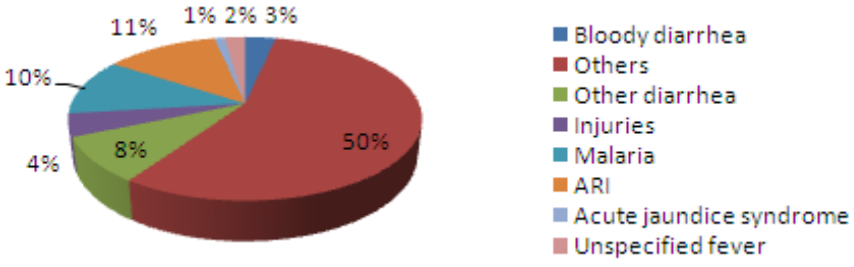


Figure 6: Proportional morbidity: population over five years of age, 8-14 September 2007, South



WHO's communicable disease control strategies in 2006-2007

- **Supporting and expanding effective coordination,** in particular the Early Warning Alert and Response System (EWARS), and fostering good collaboration between local governments, UN agencies, non-governmental organizations and supported communities
- **Enhancing laboratories** providing laboratory kits and equipment to enable rapid and accurate diagnosis
- **Capacity building** through training laboratory technicians and medical personnel on timely diagnosis, case management and strategies for controlling outbreaks and preventing epidemics
- **Pre-positioning medicines and supplies including** making available essential drugs and supplies to diagnose and treat the most common endemic and outbreak-prone diseases
- **Supporting environmental health interventions** including water and sanitation and vector control programmes with support for the Federal and State Ministries of Health and partners in the health and water sanitation sectors through information-sharing, supply of equipment and logistical assistance when

WHO supports the establishment of sentinel reporting sites to increase the population covered by the surveillance system by providing communication equipment and building capacity of health professionals in surveillance and reporting. Strengthening local health actors' capacity for rapid emergency response to disease outbreaks is a priority, and WHO is working with the Federal and State Ministries of Health to establish effective information gathering and sharing mechanisms, improve epidemiological assessment and risk analysis, pre-position emergency drugs and medical supplies and increase levels of vaccination in the epidemic-prone states of Northern Sudan.

WHO supports the Federal and State Ministries of Health and other health and intersectoral partners to respond to outbreaks of communicable disease as they occur in a coordinated manner. Environmental health interventions to reduce morbidity resulting from endemic diseases such as malaria, acute respiratory infections and bloody diarrhoea continue, including vector control measures and water quality monitoring.

Special programmes are also in place for the surveillance, control and, where possible, the elimination of HIV/AIDS, childhood vaccine-preventable diseases, tuberculosis, leprosy, schistosomiasis, soil-transmitted helminths, leishmaniasis and other tropical diseases. Across Sudan, more than 30 communicable diseases, including those listed above, are monitored by more than 700 sentinel sites reporting on a weekly basis against a well-defined epidemiological threshold that enable health stakeholders to detect, respond to and contain outbreaks.

Key activities and achievements in communicable disease control in 2006-2007

- Training and refresher courses in integrated communicable disease surveillance, field epidemiology and case management for health workers in the field
- Providing standard operating procedures for public health laboratories on clinical sample collection, registration, recording and isolation for improved epidemic alert, detection and verification
- Supporting the upgrade of water supply and excreta disposals facilities and establishment of sound solid waste management practices of hospitals in Darfur
- Supporting vector control interventions including pool cleaning, fogging, and spraying through supplies and technical support
- Expanding the EWARS system to cover 83% of internally displaced persons across the Darfur region
- Strengthening capacity of all state laboratory directorates through training on laboratory management skills and operation and maintenance and support services for laboratory equipments
- Procuring high frequency radio communication equipment for 30 sentinel sites in high-risk states including Abyei area
- Strengthening water quality monitoring through sanitation inspections and water testing, particularly in internally displaced persons camps in Darfur
- Strengthened local government environmental health programmes for managing environmental health activities in both emergency and normal situations

Endemic diseases in Sudan

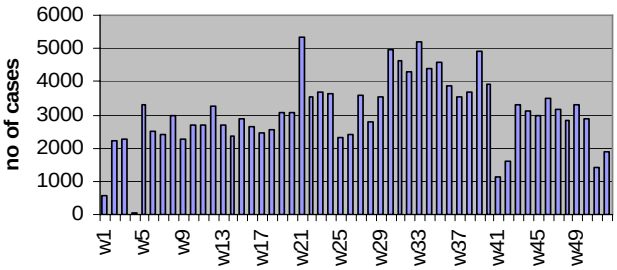
Malaria. Malaria is one of the leading causes of morbidity and mortality in Sudan. Based on climatic models, it is estimated that 75% of the population (37 million) are at risk of endemic malaria while the remaining 25% may be exposed to the risk of epidemics following heavy rains and floods of the River Nile. Malaria poses an enormous burden of morbidity and mortality: there were over 1.5 million reported cases in 2007 which accounted for 21% of annual outpatient consultations and about 30% of inpatient admissions. Nearly 16% of hospital deaths were attributable to malaria.

During the 2006-2007 period, WHO's support for malaria control included the provision of insecticide-treated bed nets and drugs, capacity building for the early detection, diagnosis and effective treatment with artemisinin-based anti-malarial combination therapy (ACT) and technical and logistical support for selective sustainable vector control. Indoor residual house -praying and other environmental interventions were contributed to a reduction in the attack rate in some geographical areas (see Figure 7) During that period, the Khartoum Malaria Free initiative developed eco-friendly alternatives to minimize the reliance on insecticides for controlling malaria when possible.

Bloody diarrhoea and acute respiratory infection. Both contribute significantly to the burden of disease in Sudan. Figure 8 shows the weekly number of reported cases of bloody diarrhoea in Northern Sudan in 2007.

To reduce levels of acute respiratory infections and bloody diarrhoea, WHO supports environmental interventions to improve living conditions and water supply for vulnerable populations such as internally displaced persons. During the 2006-2007 period, WHO's activities included water quality surveillance, health and hygiene promotion, coordination with partners and outbreak investigation. WHO sub-offices conduct regular training for medics and paramedics on standard case management of dysentery and acute respiratory infections. WHO also supports the pre-positioning of basic supplies against dysentery and acute respiratory infections to ensure a prompt and effective response to outbreaks and reduce related morbidity and mortality. Sustainable intersectoral interventions are required to reduce the incidence of endemic cases of bloody diarrhoea and acute respiratory infections.

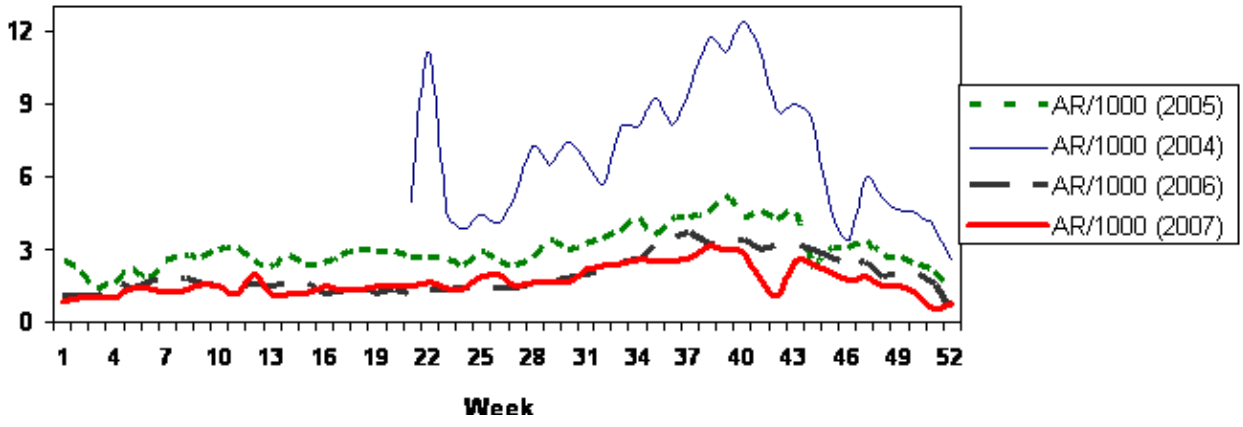
Figure 8: Weekly morbidity due to bloody diarrhea in Northern Sudan 2007



Vaccine-preventable diseases

Polio Polio is not endemic in Sudan and no new cases have been reported since 2005. However, the country is deemed to be at risk of re-infection from neighbouring countries, in particular Chad, due to major population and cross-border movements between the two countries. For this reason a key priority for 2008 is strengthening communication and intervention coordination across borders. Led by

Figure 7: Malaria attack rate per 1000 in Darfur 2004-2007



the Ministries of Health, in collaboration with WHO, UNICEF and other partners, a series of national polio immunization campaigns were successfully carried out across North Sudan, with particular focus on Darfur, in 2006 and 2007. Each round immunized between 6 and 8 millions children under five. WHO and its partners support the cost of vaccines, logistics and social mobilization efforts in Sudan.

In some regions, insecurity remains a potential obstacle to the vaccination effort. UNICEF estimates that some 200,000 children in the Darfur region have not been reached by polio immunization campaigns because of insecurity.

Measles. Measles transmission is at its lowest since 2000. The catch-up vaccination campaign against measles, which started in 2004, continued throughout 2005 and 2006. The other major components of elimination was the establishment of case-based surveillance, which began in 2006 and the inclusion of measles serology within polio-testing laboratories.

HIV/AIDS and TB

HIV/AIDS. Sudan is currently in the early stages of a generalized HIV/AIDS epidemic with an estimated prevalence of 2.6%. The general assumption is that the prevalence is probably higher in the south, the east and around Khartoum.

During the 2006 and 2007 period, the main strategic objective for the HIV/AIDS programme was to develop national capacity by supporting national programmes and civil society organizations, with the Sudan National AIDS Programme as the main implementing partner. WHO support civil society organizations for training on voluntary counselling and testing and for advocacy activities for people living with HIV/AIDS.

WHO's main activities focus on voluntary counselling and testing, anti retroviral therapy, procurement and supplies management, as well as the management of opportunistic infections. Other areas of support include surveillance, syndromic management of sexually-transmissible infections, blood safety, advocacy and awareness-raising.

In 2007, WHO also conducted a rapid assessment of HIV/AIDS needs among populations of humanitarian concern and facilitated the adaptation of the generic IASC guidelines for HIV/AIDS interventions in emergency settings. In late 2007, WHO supported an in-depth programme review to promote the programming of HIV/AIDS-related interventions for populations of humanitarian concern; more than 80 stakeholders working in advocacy and sensitization activities were reached.

In 2008, WHO will continue supporting not only care, treatment and capacity building, but also a comprehensive nationwide HIV/AIDS survey while deploying more HIV/AIDS-designated staff in states most affected by emergencies.

Tuberculosis. Combating tuberculosis is a priority: Sudan accounts for 8-11% of the TB burden in the WHO Eastern Mediterranean Region. In 2006, the estimated prevalence was 400 cases per 100,000 people and the

Donor funds play a crucial part in the protection of children from the debilitating and crippling disease of polio. In August 2007, an estimated 4.9 million children across the north of Sudan were targeted in a special round of polio immunization starting. Led by the Ministry of Health with the technical support of UNICEF, WHO and other partners, the three-day campaign to protect children against the virus comes in response to reports of polio in neighbouring Chad. The immunization drive covered all 15 states in the north of Sudan reaching over 80% of children under five. Tens of thousands of vaccinators travelled house to house, administering the oral polio vaccine.

overall estimated death rate, including patients living with HIV/AIDS, was 65/100,000. In 2007, the estimated number of smear positive cases was close to 27,000, of which only 10,000 were notified to the national programme. This means that the case detection rate is 37%, well below the target of 70%. The disruption of health services due to conflict is a contributory factor to the low case detection rate. In 1993, the National TB Programme established a Directly Observed Treatment Short-Course (DOTS) programme where treatment is provided free of charge thanks to the support provided by WHO and its donors.

During the 2006-2007 period, WHO provided drugs and supplies to the National Programme and DOTS programme, as well technical support through capacity building particularly in leadership, managerial and technical skills.

WHO activities within HIV/AIDS in 2006-2007

- Coordination
- Rapid assessment of HIV/AIDS needs
- Capacity building
- Procurement and supply management
- Protocols and guidelines
- Surveillance
- Voluntary counselling and testing
- Anti Retroviral Treatment
- Treatment for sexually-transmissible infections

4. WHO Response to Outbreaks of Communicable Disease in 2006-2007

Although major outbreaks of acute watery diarrhoea/cholera, meningitis and haemorrhagic fevers occurred in most parts of Sudan during the 2006-2007 period, activities continued to strengthen the alert and response system. Surveillance, prevention and control were also enhanced. WHO supported the Federal and State Ministries of Health as well as health and inter-sectoral partners control and contain these outbreaks by coordinating the response.

To reduce morbidity and mortality, WHO prepared for and responded to the outbreaks by coordinating the response of the health sector, building capacities, mobilizing rapid response teams, and pre-positioning supplies for vaccination and treatment.

The major outbreaks experienced in North Sudan during that period are outlined below.

4.1 Outbreaks of acute watery diarrhoea/cholera

In 2006, a multi-focal outbreak of acute watery diarrhoea/cholera affected almost all states in Northern Sudan. More than 10,100 cases and 373 deaths were reported (see table 3). In 2007, a new outbreak occurred, but was confined to Gedaref and Kassala, and Sennar states; more than 1700 cases and 58 deaths were reported.

Although this second outbreak was more limited, its reoccurrence has raised concerns of an endemic pattern in Northern Sudan.

WHO, in partnership with the Federal and State Ministries of Health, UNICEF and health partners contained both outbreaks by strengthening surveillance and active case finding in the community and by establishing cholera treatment centres to ensure early rehydration and health education. By the end of the intervention in 2006, the overall case fatality rate for the whole of Northern Sudan had dropped from 4% to 2.6%. It is estimated that over 20,000 cases of acute watery diarrhoea/cholera may have been prevented.

Prevention and containment measures in 2006

Pre-positioning of supplies and equipment
Inventories of emergency rehydration supplies to treat at least 30% of reported cases at any given time were maintained in all health facilities throughout the outbreak. WHO provided:

- Interagency diarrhoeal disease kits;
- 60,000 sachets of oral rehydration salts and 19,000 bottles of Ringer's Lactate solution to the State Ministries of Health and 42,000 sachets and 7000 bottles to non-governmental organizations;

Table 3: Cumulative attack rate for AWD/cholera in 11 high risk states of Northern Sudan in 2006

State	Population	Cumulative number of cases reported in 2006	Attack rate in 2006 (Cases per 100000)
Khartoum	6783624	1046	15
North Kordofan	2191874	1602	73
White Nile	1576300	816	52
South Darfur	3081747	1659	54
South Kordofan	1687548	770	46
River Nile	996978	614	62
Gedaref	1475929	1275	86
Kassala	1726646	860	50
North Darfur	1716669	292	17
Sennar	1453860	193	13
West Darfur	1666479	780	47
Total	**24357654**	**10,154**	**42**

Responding to the health-associated risks of flooding

Severe flooding significantly increases the risk of outbreaks of vector-borne diseases such as malaria, and waterborne diseases including acute watery diarrhoea/cholera. When floods occur, WHO, together with the Ministry of Health and partners from the health and water and sanitation sectors must act quickly and effectively on:

- **Water testing, monitoring and treatment:** WHO provides microbiological testing kits, chlorine and deltametrine to partners (including WATSAN) to treat public waterways, while laboratories are equipped with tools for assessments
- **Vector control and protection:** Pools of stagnant water are cleared and high-risk areas fogged and sprayed to reduce the incidence of malaria-carrying mosquitoes – WHO provides long-lasting insecticide nets to partners for distribution
- **Health services:** Essential medicines and supplies are provided, while health workers are trained on detection and case management
- **Coordination and information:** WHO coordinates information flows during outbreaks, including checking rumoured cases

- Ten water quality testing kits including pool testers, reagents for rapid test, reagents for bacteriological test, chlorine (for infection control), protective clothing, sprayers, cleaning equipment and deltamithrine for vector control, for the WATSAN (Water and Sanitation) department.

Coordination

The response required large-scale coordination and management and effective sharing and dissemination of information. Strategies and operations were agreed upon and coordinated through task forces operating at central and state level. The central task force, based in the Federal Ministry of Health, included WHO, UNICEF, donor agencies and other health partners.

Capacity building

- Training sessions on active case surveillance were organized throughout Northern Sudan;
- 230 community health volunteers were trained on active case search and detection, representing at least one trained community health volunteer for every 3500 people living in the village/camps;
- 430 health workers were trained on home -based rehydration therapy ensuring that there were three trained staff available at each oral rehydration treatment corner;
- WHO conducted 24 training courses and ten refresher courses on chlorination of public water supplies for 450 staff members from the State Ministries of Health and the WATSAN department;
- 620 community health volunteers were

Experience of Kassala in 2007 outbreak of AWD/cholera

In 2007, continuous and coordinated activities by WHO and other health partners throughout the outbreak of AWD/cholera kept the total number of cases to 285 in Kassala. Strong case management reduced the case fatality rate in Kassala to 2.5% with the outbreak resulting in only 7 deaths in the state out of a total of 75 deaths overall. Despite the risk factors associated with extensive flooding including compromised water and sanitation systems and population movements, the coordinated response, as well as capacity building ahead of flooding contained the outbreak to Eastern Sudan limiting the morbidity and mortality and geographical spread compared to the outbreak seen in the 2006 outbreak .

The experience of Kassala in particular provides an example of best practice and is being further being studied for possible replication in locations with similar conditions, including other countries in the region.

trained on household management of safe drinking water and another 630 on hygiene promotion and safe sanitation practices in the affected states.

Guidelines and protocols
Over 3700 surveillance guidelines and forms and almost 2000 case management guidelines were distributed to the affected states during the outbreak period. Environmental health guidelines were also produced and disseminated.

Health laboratory support
Three complete enteric disease bacteriology kits were distributed to the National Public Health Laboratory of the Federal Ministry of Health. Seven field laboratories were set up in affected states to improve laboratory diagnostic capacity for detection and laboratory confirmation.

WHO's response to the acute watery diarrhoea/cholera outbreak was funded by ECHO

EUROPEAN COMMISSION
Humanitarian Aid

4.2 Outbreaks of meningitis

The 2006 epidemic season saw a significant increase in the number of outbreaks across the African Meningitis Belt, including in South Sudan. Sudan is the only country within the WHO Eastern Mediterranean Region that belongs to the Belt. Each year, more than 29 million people living in the 12 high-risk states of Northern Sudan, including over 1.9 million internally displaced people living in Darfur are thought to be at risk of meningitis.

Between January and June 2007, more than 2600 cases were reported in North Sudan, including in the Darfur region. The overall case fatality rate was 2.1% (a figure relatively low compared to those of 1999 and 2000 – see Table 4). WHO contributed to the treatment of 2200 patients by providing drugs for treatment and funds for surveillance and to the preventive vaccination of more than 60,000 people.

Table 4: Number of reported cases of meningitis in Northern Sudan, 1998-2007

Reporting year	Cases	Deaths	Case fatality rate %
1998-99	33,664	2508	7.5
2000	5076	468	9.2
2001	2252	336	14.9
2002	2407	455	18.9
2003	1436	158	11
2004	1133	175	15.4
2005	3703	124	3.5
2006	6487	475	7.3
2007	2617	55	2.1
TOTAL	**58,775**	**4754**	**8.1**

Focus on meningitis (1)

During the dry season, December to June, dust winds and upper respiratory tract infections caused by cold nights lower immunity levels and increase the risk of meningitis. Overcrowded conditions in internally displaced camps and population movement are additional risk factors.

In 2006, more than 2400 cases of meningitis were reported from five target states. 35 sentinel sites were set up for reporting. All descriptive data were regularly analysed by the Federal and the State Ministries of Health. Overall, 220,000 people were vaccinated (see Table 5) and it is estimated that almost 1700 cases were prevented by the campaign.

Prevention and containment measures for meningitis in 2006 and 2007

Pre-positioning of essential supplies

- Laboratory and surveillance capacities were strengthened with rapid diagnostic kits, lumbar puncture kits and transport media. Chloramphenicol and other supplies were pre-positioned for case management.

Coordination

- A national task force including the federal Ministry of Health, WHO, UNICEF and other national and international non-governmental partners coordinated the overall response.

Surveillance

- WHO supported active surveillance and laboratory diagnostic, ensuring that outbreaks were detected and confirmed early enough to implement control measures successfully.

Success story: Donor support for disease surveillance saves lives in 2006

On March 9 2006, Kutum hospital in North Darfur reported to SMOH and WHO office in El Fasher that 3 suspected meningitis cases had been admitted to the hospital. The three cases ware from the same village, Neena. On March 10, a team from Kutum hospital and GOAL International conducted an active case finding investigation in the Neena area. 6 further cases were identified. Treatment was started and the prognosis for patients was good.

On March 13 and 14, an investigation team from SMoH and WHO conducted a visit to Kutum and Neena area to assess the situation in the area and to conduct trainings on meningitis case management and epidemic response. The team also met with community leaders to help in increasing public awareness regarding the disease. An enhanced surveillance system was established and a daily report was processed from Kutum to El Fasher for early detection of any increase in the number of cases.

The strong surveillance system enabled rapid and effective response and the outbreak of meningitis in Kutum area was successfully contained. The early detection of the Kutum case averted ill health and loss of life as well as saving scarce resources.

Immunization

- In 2006, a vaccination campaign in five states reached 220,000 people at high risk of contracting meningitis (see inset). In 2007 funding received from ECHO and approval for procurement from the International Coordinating Group allowed WHO to position 200,000 doses of the trivalent ACW vaccine playing a crucial role in preventing the spread of the outbreak to other camps for internally displaced persons and host communities in Darfur. In the first half of 2007, 61,000 people received the trivalent ACW vaccine in Eldaen locality and in several camps for internally displaced people in South Darfur.

Capacity building

- WHO supported the training of more than 550 medics, paramedics and community health workers on the standard case management guidelines, particularly laboratory and surveillance.

4.3 Outbreaks of haemorrhagic fever

Yellow fever. The outbreak that struck South Kordofan in late 2005 was the most significant in Sudan since 1940, when 15,000 cases were reported. Between mid September and early December 2005, 605 cases were reported including 163 deaths (CFR 27%). During the second half of December, the absence of new cases and evidence sug-

Table 5: Beneficiaries of meningitis vaccinations conducted in November-December 2006, Northern Sudan

State	Population targeted for vaccination (2-30 years)	Number of people vaccinated against bivalent A/C vaccines	Vaccination coverage achieved at the end of campaign (%)
Blue Nile	66,500	60,367	91
Kassala	60,000	53,748	90
South Kordofan	41,075	32,486	79
North Kordofan	32,971	29,346	89
Gedaref	44,500	43,707	98
Total	245,046	219,654	90

gesting that the vector was no longer present led to the conclusion that the yellow fever outbreak had ended following a successful immunization campaign. However, WHO's activities to control and prevent further outbreaks continued well into the 2006-2007 period. In addition to the 1.5 million people who were vaccinated against yellow fever in South Kordofan, another 1 million people were immunized in North Kordofan.

Besides responding to the outbreak in South Kordofan, WHO worked with the State Ministry of Health and volunteers from the International Rescue Committee to familiarize health workers with the risk of yellow fever, and assess the vaccination status of people in the Ingaz area in Port Sudan. The area hosts a sizeable number of residents from South Kordofan who frequently travel back and forth for seasonal agricultural activities. Although, no cases of yellow fever were reported in Port Sudan in 2005-2006, Red Sea State remains at risk of the disease.

WHO's activities to prevent and contain the outbreak of yellow fever

Coordination

- WHO ensured coordination among health partners for epidemiological surveillance and information sharing. A team from the WHO Global Alert Response Operation Network (GOARN) was deployed to support the Federal Ministry of Health; it included three epidemiologists, two entomologists, one virologist, one logistician and one coordinator from CDC Atlanta, the Pasteur Institute and WHO.

Surveillance

- WHO provided technical support to improve surveillance, assessments and case definition and supported the development of guidelines for case definition and management of yellow fever for health personnel in high-risk areas A fact sheet on haemorrhagic fever was also developed.

Immunization and reduction of related mortality

- WHO supported the State Ministry of Health and partners conduct a mass yellow fever vaccination campaign for nearly 1.5 million people, or about 91% of the state's population.

Capacity building

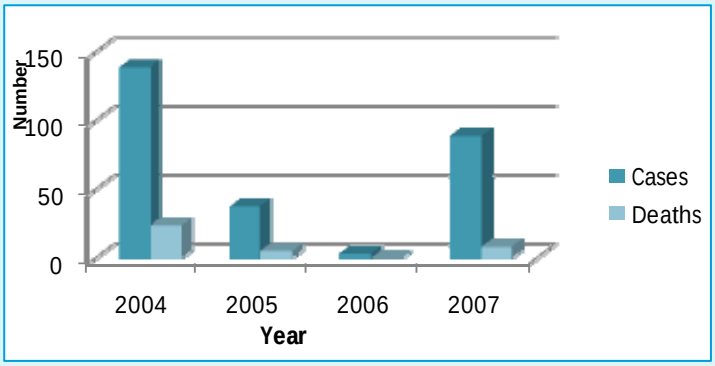
- WHO supported the training of 130 health professionals, including 52 doctors, on case management and of 46 others on laboratory diagnosis and on other bio safety issues.

WHO's response to the yellow fever outbreak was funded by the Italian Cooperation

Dengue fever

Dengue fever is now endemic along the coast of the Red Sea. In addition, recent entomological surveys have confirmed the presence of the vector Aedis eagypti in Gedaref and Kassala state with reported cases in these states. The risk of transmission of dengue fever increases after flooding. WHO's participation in vector control interventions continues to help prevent and control outbreaks. Several outbreaks of dengue fever were reported in 2004 -2007 in the Eastern Sudan Region (see Figure 9). In 2006-2007, WHO coordinated and supported the outbreak response through training of medics and paramedics on standard case management, vector control campaigns and logistic support to the national laboratory.

Figure 9: Number of reported cases and deaths of dengue fever in Eastern Sudan, 2004-2007

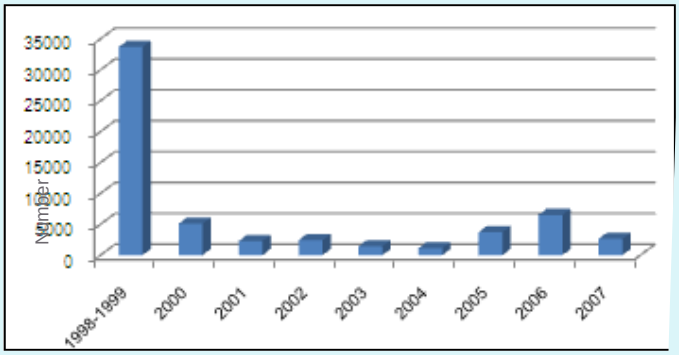


A successful experience was shown in 2006 in Red Sea state where WHO fully supported vector control activities by providing over 50 spraying pumps and quantities of deltamethrine. These measures contributed to a marked prevention and reduction of cases compared with 2005. In 2007, Red Sea state did not report any case of dengue fever.

Focus on meningitis (2)

The geographical location of Sudan in the African Meningitis Belt means that small multifocal outbreaks of meningitis are inevitable during the high-risk season. However, timely public health intervention and rapid containment measures can prevent the outbreak from spreading from its source (epicentre) to adjoining areas and thus prevent larger epidemics. Risk factors for invasive disease and for outbreaks are not completely understood. A combination of conditions (environment, host and organism) is necessary for an epidemic to occur. These include: immunological susceptibility of the population (perhaps due to loss of herd immunity to the prevalent strain), special climatic conditions (dry season, dust storm), low socio-economic status and transmission of a virulent strain. Acute respiratory tract infections may also contribute to the development of meningococcal disease epidemics.

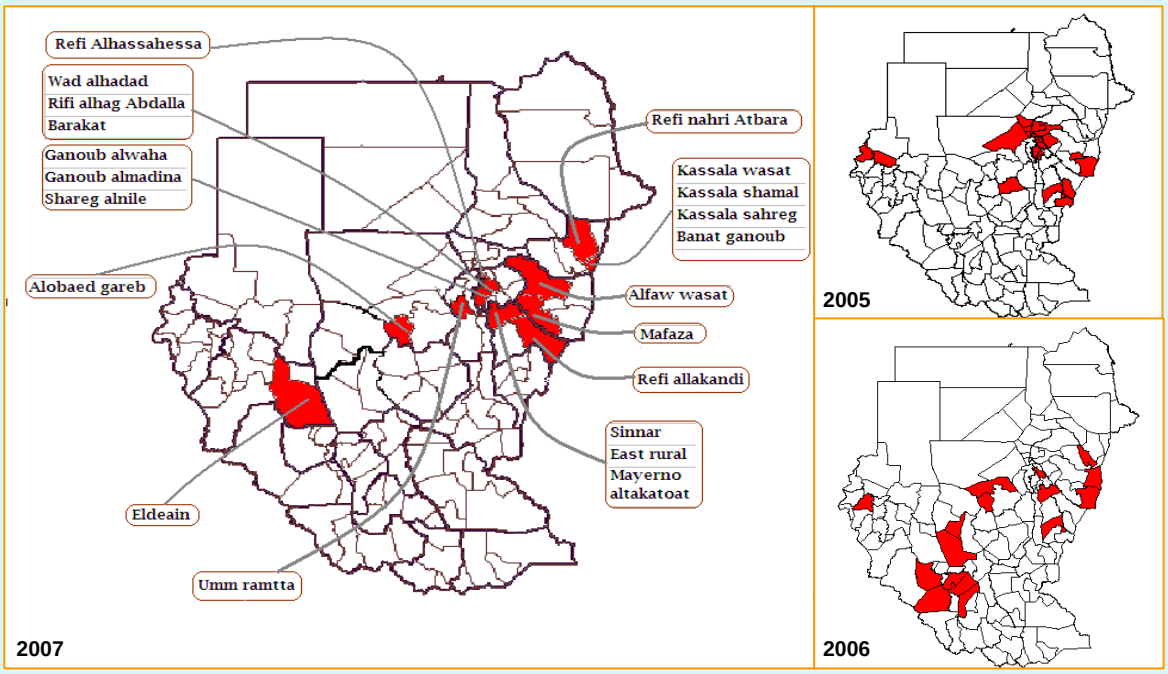
Figure 10: Number of reported cases of meningitis in Northern Sudan, 1998-2007



In 2006, approximately 2700 cases (including 91 deaths) of meningitis were reported from different states of northern Sudan and almost one million people were vaccinated against the disease during various campaigns conducted in 11 states. In 2007, more than 2600 cases (including 55 deaths) were reported, and more than 500,000 people were immunized in six states. Although the main serogroup identified in Sudan is *Neisseria Meningitidis Type A*, West and South Darfur reported cases of *serotype W135* in 2006 and 2007 respectively.

WHO supported the Federal and State Ministries of Health and other partners strengthen surveillance and laboratory diagnostic capacity, pre-position essential supplies, provide training on case management, conduct vaccination campaign and ensure coordination through the mechanism of task forces.

Figure 11: Sectors reaching epidemic threshold in 2005, 2006 and 2007



WHO's response to the meningitis outbreak was funded by ECHO

***Rift valley fever*:** On 18 October 2007, the Federal Ministry of Health notified WHO of a suspected haemorrhagic fever outbreak in the states of White Nile and Sennar, requesting its support to investigate and control the outbreak. Some 28 cases had been reported and the case fatality rate stood at 100%.

On the basis of the clinical information available, WHO mobilized staff with expertise in viral haemorrhagic fever, including yellow fever control, from the country, regional and headquarters level to support the response. The field team included staff from the Ministry of Health, the Ministry of Animal Resources and Fisheries, FAO, and the NAMRU-3 laboratory in Cairo, a WHO Collaborating Centre.

Until the 2007 Rift Valley fever outbreak, no human cases had been reported in the recent past. However, Sudan falls within the Rift Valley fever epizootic zone and is therefore at risk. The cumulative number of cases reported between the beginning of October and the end of December 2007 is 698 and 222 deaths (CFR 32.4%) After the first month, the case fatality rate dropped and remained below 50%. Affected states included White Nile, Gezira, Sennar, Khartoum, River Nile and Kassala .

Prevention and containment measures for Rift Valley fever in 2007

Pre-positioning of essential supplies

Laboratory and surveillance capacity were strengthened through the provision of essential case management supplies and insecticides.

Coordination

- A national task force including the Federal Ministry of Health, the National Animal Health Authority, WHO, UNICEF and national and international partner non-governmental organizations coordinated the overall response to outbreak;
- All states reporting human cases established a task force with representatives from the animal and human health sectors, other relevant government agencies, non-governmental organizations and UN agencies;
- 42 entomological surveys were conducted in the six affected states and 1600 sites were sprayed as part of vector control measures.

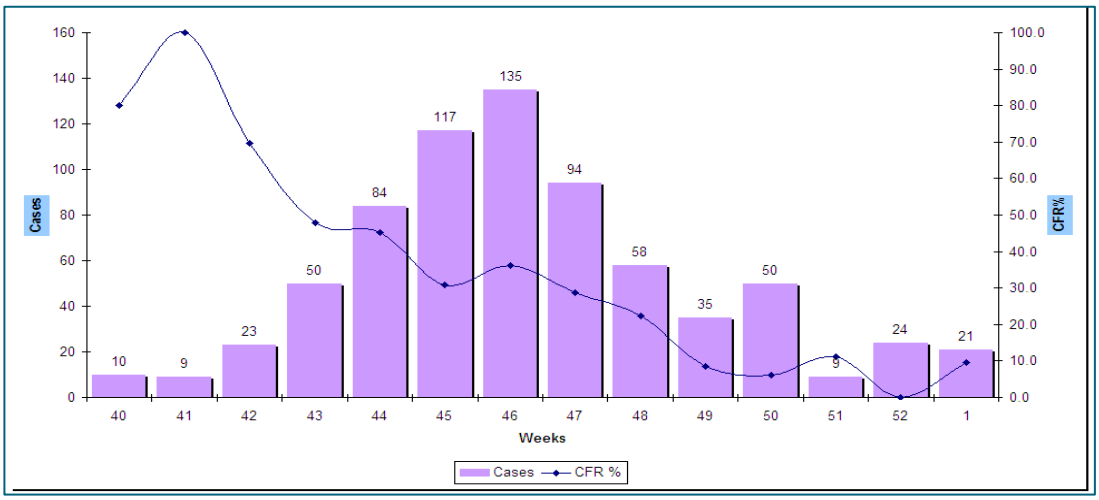
Surveillance

- Staff training and essential laboratory reagents, kits and equipment were provided to upgrade the capacity of the National Public Health Laboratory;
- WHO supported active surveillance and laboratory diagnostic activities to ensure that outbreaks were detected and confirmed early enough to implement control measures successfully. Over 90% of surveillance sites in affected states reported cases consistent with the Rift Valley fever standard case definition and surveillance guidelines.

Case management

- WHO supported capacity building for Rift Valley fever surveillance and standard case management for 600 health professionals;

Figure 12: RVF cases and case fatality rates report in affected northern states from week 41 of 2007 to week 1 2008



- Over 90% of the reported human cases were treated in special wards according to the standard case management guidelines. Appropriate infection-control practices were set up and over 90% of the referral hospitals complied with the standard infection control practices for haemorrhagic fever.

Health education

- mobile health education campaigns reached 661 villages and trained health promoters conducted 5600 home visits;
- 1275 radio broadcasts, 429 TV shows and 37 radio drama sessions were organized during the outbreak to disseminate health messages on the prevention of Rift Valley fever transmission.

WHO's response to the Rift valley fever outbreak was funded by the CERF and ECHO

4.4 Other outbreak-prone diseases

Acute jaundice syndrome (Hepatitis E): Although acute jaundice syndrome is not endemic in Sudan, outbreaks occur in camps for internally displaced people due to poor hygiene and weak water and sanitation systems. In 2007, outbreaks of acute jaundice syndrome were reported in several camps in Darfur. In response, environmental interventions, including continuous monitoring of water quality, were strengthened in collaboration with UNICEF and WATSAN partners.

During the 2006-2007 period, key activities to reduce the incidence of acute jaundice syndrome were organized. They included the construction of latrines, the distribution of jerry cans and the related jerry can cleaning campaigns, the reinforcement of water supplies chlorination, community health education and hygiene promotion campaigns, organized via community health workers, and active case finding by health teams.

Human avian influenza: The emergence of the H5N1 strain of avian influenza in several countries in Africa has underlined the need for Sudan to take measures to protect human health, and prepare for a possible pandemic. The risk of human infection from an avian H5N1 virus can be expected to be similar to that in Asia and in other African countries, notably Egypt, Nigeria and Niger. The occurrence of human cases would create enormous new challenges for the already fragile and overburdened health system. Cases of a highly pathogenic H5N1 strain were detected in three states.

In collaboration with WHO, a national multisectoral planning team, which includes the Federal Ministry of Health, has prepared a comprehensive National Pandemic and Avian Influenza Preparedness and Response Plan. It provides an integrated framework to improve coordination efforts and build capacity. Its implementation will be a priority for 2008-2009. In May 2007, WHO conducted a national training workshop on influenza surveillance and pandemic preparedness in Khartoum. Another 189 health workers were trained on avian influenza in emergency preparedness and response planning, and on outbreak surveillance and containment.

Future directions and priorities for outbreak preparedness and response

Surveillance and control of outbreaks of communicable disease continue to be hampered by weak health infrastructure and inadequate human and financial resources. Working to strengthen these will help move towards a more coherent, planned and systematic response strategy. WHO's aim is to strengthen capacity for communicable disease surveillance and response at federal, state and local level by:

- Developing and strengthening preparedness for outbreaks and health emergencies including surveillance and pandemic

preparedness for human avian influenza;

- Strengthening the capacity of state epidemiology outbreak investigation teams and staff by providing training and internships;
- Continuing the expansion and development of the communicable disease surveillance system, including EWARS in Darfur and supporting infrastructure, by improving the information and data management skills of epidemiology staff and by ensuring adequate communication facilities;
- Encouraging laboratory-based disease surveillance;
- Supporting intersectoral environmental health interventions particularly in camps for internally displaced persons;
- Improving the implementation of international health regulations, cross-border communication and preparedness through regular orientation sessions with health partners;
- Promoting research activities, documenting experiences and enhancing forecasting of disease outbreaks.

5. WHO's Humanitarian and Early Recovery Activities in the Regions

5.1 Introduction

The health context of Sudan and the nature of WHO's assistance vary considerably from region to region. While the Darfur region remains burdened by ongoing conflict and urgent humanitarian needs, several regions in northern Sudan have moved towards recovery and development. However, marked disparities in health care can be found between localities in the same region. Although health partners are scaling up their activities towards recovery in several regions, there remain vulnerable populations within those regions who rely on humanitarian assistance. An example of a region where both humanitarian and early recovery needs co-exist is South Kordofan where WHO is mainly providing humanitarian assistance to the vulnerable population of Abyei.

Each context brings its own particular health challenges to which WHO adapts its approach. While regions are characterized by different health needs, it must be highlighted that health systems across northern Sudan remain underdeveloped and affected by a common shortage of resources and capacity. This overall situation, compounded by a high risk of health emergencies, a high burden of communicable disease as well as natural disasters and conflict, means that strengthening emergency preparedness and response will remain a critical aspect of WHO's assistance to Sudan. WHO's activities and achievements with the emergency and humanitarian action in each different regions during the 2006-2007 period will be considered in turn.

WHO operations in Sudan

In Sudan, WHO is operating from a central office located next to the Federal Ministry of Health in Khartoum City and from five field offices located in Darfur, South Kordofan and East Sudan.

Figure 13: Geographical distribution of WHO's sub-offices in Sudan

The three offices in Darfur have been operational since the beginning of the crisis in 2004. In 2005, the WHO Sudan Country Office opened two new field offices in Kassala (Eastern Sudan) and Kadugli (South Kordofan). In 2006, outreach teams were also deployed to the conflict-affected transitional areas of Abyei in South Kordofan and Blue Nile in central-eastern Sudan.

Table 6: Health indicators for Darfur, SHHS 2006

Indicator	South Darfur	North Darfur	West Darfur
Under-five mortality rate (per 1000 live births)	98	95	138
Neonatal mortality rate (per 1000 live births)	28	34	42
Underweight prevalence (moderate and severe) (%)	33.2	39.6	33.2
Fully immunized children (Proportion of children 12 to 23 months currently vaccinated against all childhood diseases (i.e. percentage of children having received the DPT1-3, OPV-1-3, BCG and measles vaccinations at any time up to the date of the survey)	23.7	39.9	23.9
Maternal mortality ratio (per 100,000 live births)	1581	346	1056

5.2 Darfur

Situational analysis

The ongoing humanitarian crisis in Darfur is currently endangering the health of some 4.2 million people, including 2.4 million internally displaced persons[5]. Insecurity and lawlessness are the central problems, first because of the violence affecting the population and the related injuries and deaths but also because it seriously hampers the delivery of health care. Humanitarian workers and assets are increasingly targeted, leading to temporary suspensions of humanitarian activities in some areas. In January 2008, a joint United Nations/African Union mission began deploying and whilst currently in its early stages, it offers prospects for regaining humanitarian access.

While it is reported that health has improved in accessible areas and camps, the situation remains fragile, and considerable areas in the region are still inaccessible. Morbidity among children under five is primarily due to acute respiratory infections, diarrhoeal diseases and malaria exacerbated by widespread and chronic malnutrition. Maternal mortality rate is estimated to be high. There is also a reported increase in weapon-related complicated injuries, which put additional strain on limited secondary care resources.

According to a recent review by the UN and Partners Work Plan, around 67% of the population in Darfur have access to primary and secondary health services. In camps, outside of camps and for affected residents coverage for primary health care services was estimated respectively at 100%, 68% and 52%.

By the end of 2005, the health sector was able to offer 2.6 consultations per person per year for the internally displaced population. This figure, which averaged around 2/person/year in 2007, periodically dropped to 1.3 due to deteriorating security and further political fragmentation which resulted in limited access for both service providers and beneficiaries.

By the end of 2007, DTP3 coverage was estimated at 69%, 64% and 65% in West, South and North Darfur respectively while the coverage for measles vaccination was 66%, 58% and 60%. The Sudanese National AIDS Control Programme put the prevalence of HIV at 1.6% in 2006.

The crisis badly damaged health infrastructure and the international community was called upon to help fill gaps and meet needs. Several national and international non-governmental organizations focused on primary health care, operating mobile clinics or health centres in rural areas. As well as supporting implementing partners, WHO also strengthened the secondary care infrastructures and supported a functioning referral system.

Main activities and achievements

WHO plays a crucial role in coordinating the efforts of the humanitarian community operating in Darfur. Programmes continue to be run out of the three field offices in West, North and South Darfur.

Information sharing and coordination management

In May 2004, a coordination body co-chaired by WHO and the State Ministries of Health

[5] Darfur Humanitarian Profiles 2007.

was set up in each of the Darfur states, as well as in Khartoum. This body plays a critical role in assessing the availability of services and identifying gaps, in coordinating the health interventions of partners and in disseminating treatment protocols and other documents to build capacity of local non-governmental organizations and ministry staff.

During the 2006-2007 period, WHO conducted many joint field assessment, monitoring and supervision visits to evaluate the availability of primary health care services. For instance a joint assessment was conducted with the State Ministry of Health, Medair and MSF-Switzerland in South Darfur's Otash camp and neighbouring El Geneina town to assess the health status of newly displaced families and identify the needs of health facilities in coping with the influx.

Access to health care

During the 2006-2007 period, WHO supported local and international partners provide primary health care services for internally displaced and conflict-affected populations. For example, two primary health care facilities in Guzat Jamat and Sani Karro, closed and inaccessible rural areas of North Darfur, were rehabilitated, provisioned with essential drugs and supplies and handed over to the village health committees for the benefit of more than 50,000 internally displaced persons. In 2007, WHO also supported the expansion of primary health care services to nearly 70,000 people in under-served areas of Um Kadada locality. Activities also focused on capacity building for health workers operating in conflict areas; reproductive health and mental health issues were among the main topics.

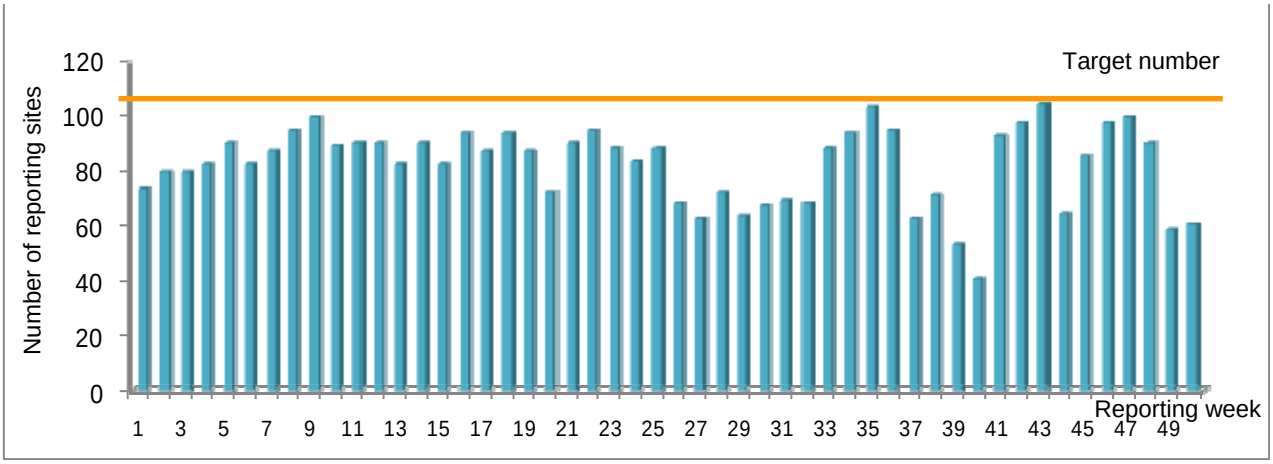
During that period, the Integrated Management of Childhood Illness (IMCI) approach was introduced in Darfur to improve the quality of health care for children with severe conditions. Focusing on the availability of drugs and supplies as well as on referral, reporting and communication with caretakers, the IMCI guidelines were adapted to the local emergency context and used to train health professionals in the region. Some non-governmental organizations, such as Save the Children, adopted the approach and started training their staff using the manual prepared by the Federal Ministry of health and WHO. In addition, Information, Education and Communication materials on key family practices affecting the health of children under five were provided by the Ministry and disseminated to the public and to school children. By the end of 2007, 159 health facilities and more than 400 doctors, medical assistants and community volunteers were implementing the IMCI approach.

With support from ECHO, WHO was able to continue the Emergency Health Care and Referral System programme initiated in 2004. During the 2006-2007 period, nearly 500,000 conflict-affected people received secondary health care through the programme. Fourteen hospitals were rehabilitated, provisioned with life-saving drugs and supplies and staffed with key health professionals to ensure free and essential secondary health care to internally displaced and conflict-affected populations.

Communicable disease control

Despite insecurity, the Early Warning Alert and Response System (EWARS) was expanded. In 2007, the system covered approximately 83% of the displaced population. On average,

Figure 14: Reporting timeliness in 2006-2007 in Greater Darfur in 2006 and 2007



WHO's support for secondary care in Darfur

In 2004, WHO initiated, as an exceptional emergency measure, a programme to support the provision of free essential secondary health care for internally displaced and conflict-affected populations in Darfur. To date, the programme Support to Emergency Health Care and Referral System in Darfur continues to be one of WHO Sudan's most important programmes. WHO is the only agency involved in such a wide-scale intervention in the region. The programme is being implemented in partnership with the Ministry of Health at both Federal and State level as well as national and international non-governmental partners. In areas where there are no implementing partners, in particular in rebel-controlled areas, WHO implements the project directly.

Key programme achievements in 2006-2007

During the 2006-2007 period, support to the State hospitals in North, South and West Darfur ensured the provision of essential secondary health care to more than 480,000 people. Free treatment including medical consultation, drugs and supplies, and laboratory, radiological or other diagnostic investigations were provided free of charge to 223,000 displaced and conflict-affected people and 258,000 people from the host population. Overall, more than 86,000 persons were admitted for free inpatient services including nursing care and accommodation, while more than 34,000 received emergency surgical interventions (including emergency obstetrics care) free of charge.

Components of the programme in 2006-2007	
Provision of essential drugs, and supplies	Maintaining critical technical staff
Environmental interventions	Capacity building
Hospital rehabilitation	Performance-based financing scheme
Referral system	

During that period, a series of training activities and workshops were conducted for 1150 State hospitals staff in North, South and West Darfur to build their capacity and enhance their knowledge and skills in technical clinical care, emergency care and basic life support, as well as in health management such as the rational use of drugs, the management of pharmaceuticals and health information management.

Future directions and priorities

In 2008, WHO's strategy to support hospitals in Darfur will aim to ensure that the population most affected by the conflict have increased financial and geographical access to services. Continued efforts will include strengthening the referral system for secondary care and enhancing the capacity of the State Ministries of Health and referral hospitals to provide quality health services. WHO will continue to support its 14 hospitals and will expand to at least five more rural hospitals.

In 2006 and 2007, WHO's Darfur hospitals programme was funded by the CERF and ECHO

79% of the units reported on time (against a target of 85%). By the end of 2007, there were 126 reporting sites.

In 2006, 2600 cases of acute watery diarrhoea/cholera and 90 related deaths were reported in parts of Darfur. The region also suffered from an outbreak of meningitis with nearly 6500 cases and 475 deaths reported. In 2007, WHO supported reporting, surveillance and pre-positioning of drugs and supplies to strengthen local preparedness to outbreaks. Over 1400 health personnel were trained in communicable disease control. In 2007, no cases of acute watery diarrhoea/cholera were reported. Strengthened surveillance and improved response through a reactive vaccination campaign helped health partners contain cases of meningitis in South Darfur. In North Darfur, cases of acute jaundice syndrome were detected early and contained in parallel with environmental health and health education interventions.

In 2006 and 2007, key achievements in environmental health included strengthened capacity and technical skills in water quality monitoring and vector control for Ministry staff, implementation of corrective water/sanitation measures in five diarrhoeal disease high-risk locations and training of environmental health officers, camp managers, water point operators and vendors, school teachers and community leaders on water quality control measurements. WHO provided supplies, equipment and training to support the establishment of a water-testing laboratory a satellite laboratory in North Darfur. Both are operational and professionally managed. Four secondary health facilities are implementing safe health waste management following WHO's interventions.

In 2007, at least 486,000 displaced persons living in camps in North and South Darfur benefited from improved water supply and sanitation. WHO also provided equipment and technical support to conduct spraying campaigns in high risk camps. Health partners have observed reduced vector density and incidences of vector-borne diseases (malaria, AWD/cholera, leishmaniasis) in 13 targeted camps in 2007.

Another notable achievement was the growing integration and coordination of interrelated activities. WHO played a key role in developing an implementation plan in each of the three states. For instance, WHO facilitated the interaction between the State Ministry of Health programmes for malaria, communicable disease control and environmental health to better coordinate vector management activities.

Continuing challenges and future directions

Operations in Darfur will continue to support access to health care, to improve immunization coverage, to strengthen health system structures and to build capacity particularly the health management information and drug management systems. In 2006 and 2007, operations in Darfur focused mainly on those most severely affected by the conflict, in particular internally displaced persons. In 2008 and 2009, activities will be scaled up and expanded to reach the resident population and encourage a more sustainable and holistic approach to improved health in the region. Activities will include:

- **Expansion of EWARS to the resident population.** In 2007, while EWARS covered 83% of the displaced population, it only covered 13% of the resident population.
- **Increased focus on environmental health interventions,** such as water quality monitoring, waste management and vector control as preventive tools against disease outbreak.
- **Strengthening the referral system outside of camps** with particular focus on rural areas.
- **Increased focus on maternal and child care** through the expansion of the IMCI programme.

New health needs have emerged as a consequence of the crisis, related in particular to mental health and to the physical, social and cultural consequences of gender-based violence. In Darfur, the impact of the crisis on mental health has been severe: a recent study among internally displaced people in South Darfur showed a suicide rate approximately 100 times higher than that expected in the general population. Addressing trauma experienced by the conflict-affected population is one of the greatest challenges faced by the humanitarian community and assessment and integration of mental health into primary health care is a priority for the next biennium. Addressing such issues requires closer engagement with communities through programmes such as the IMCI.

Another emerging threat is linked to the increasing rate of refugees coming from Chad and other countries which present an additional burden to health services. Strengthened cross-border coordination of health policy and interventions is therefore an important priority.

Action on the Ground in 2006 and 2007

South Darfur

- five new reporting units were integrated into the EWARS system
- Life-saving supplies, drugs, investigation kits and laboratory reagents were pre-positioned in hospitals
- 30 community volunteers were trained in identifying best practice for child health care
- The construction of a new extension in Nyala Training Hospital was supported; it includes an intensive care unit and a pharmacy for the IDP focal person
- The Tulus rural hospital was rehabilitated; it covers nearly 500 000 under-served people
- State and non-governmental health staff in Saleah and Ed Daein camps received training on case definition, detection, reporting, investigation, management and active case search to respond to outbreaks
- Portable testing kits and related training on water quality monitoring were provided for State, WES and non-governmental staff
- Camp health coordinators were trained in monitoring drinking water quality, sanitation, solid waste management and control of disease vectors
- 520 community health volunteers were trained on water chlorination
- Two secondary health facilities are now implementing safe health care waste management
- Vector control campaigns were organized in collaboration with health partners in six camps: WHO provided equipment and insecticide and training

West Darfur

Poor security in remote areas (especially in Jabal Moon and Jabal Marra) limited the activities of many agencies and non-governmental organizations. Highlights include:

- Capacity-building on communicable disease control and environmental health interventions for health partners and the State Ministry of Health
- Detection and effective response to a meningitis outbreak through a mass vaccination campaign in Zalingi (2006)
- Over 40 doctors and medical assistants were trained on IMCI standard case management
- Regular provision of essential medicines, supplies and laboratory reagents to six hospitals
- 13 medical specialists including surgeons, obstetricians, gynaecologists and paediatricians were appointed in various hospitals
- The construction of the new laboratory and blood bank at El Geneina hospital was supported. The laboratory acts as referral laboratory for the state
- The first ophthalmic hospital was officially inaugurated in February 2006: WHO provided an ophthalmologist, equipment and drugs

North Darfur

Due to the deteriorating security most international non-governmental organizations downsized their operations and many pulled out altogether. WHO therefore redoubled efforts to support the remaining agencies. Highlights include:

- The IMCI strategy was introduced and implemented in 29 health facilities in El Fasher locality. Twelve medical doctors and 82 medical assistants were trained on IMCI modified standard case management. Two major camps of around of El Fasher began implementing the IMCI community component. Health service facilities were mapped, and gaps identified to help planning
- Investigations were carried out on a suspected mumps epidemic in Um Dam, a suspected meningitis epidemic in Kutum and a suspected whooping cough epidemic in Shangil Tobayi
- Training courses on epidemic preparedness and rapid response for meningitis and acute watery diarrhoea/cholera, surveillance and data management were conducted for State staff
- Two health facilities in Gusa Jamat and Sanya Karrow, were rehqbilitated and equipped
- 300 community health workers in camps were trained in community health education
- State hospitals received drugs, supplies and staff with the recruitment of specialists for Mallet hospital and of a surgeon for Kutum Hospital
- Two health facilities were rehabilitated in Um Kadoya and Um Heglieg benefiting more than 50,000 displaced persons
- 140 primary health care supervisors were equipped with basic and modern tools for planning and management
- Primary health care services were extended to 69,520 people in under-served areas in Um Kadada locality
- Water testing equipment and related training were provided for the State Ministry of Health, while a water quality testing laboratory and a satellite laboratory are now operational

WHO's 2006 and 2007 activities in Darfur were funded by USAID, The Common Humanitarian Fund, the CERF and ECHO

5.3 East Sudan

Situational analysis

WHO activities in the eastern region of Sudan operate out of the field office in Kassala, which was established in May 2005.

East Sudan covers the states of Kassala, Gedarif and Red Sea and has an estimated population of nearly 4.4 million. It hosts approximately 140,000 refugees, principally from Eritrea with 8000 arriving annually, mainly residing in camps in Kassala. Nearly 70,000 internally displaced persons are also residing in camps in Kassala and up to 100,000 others have integrated in local communities in rural Port Sudan and Red Sea states.

The region is in a phase of transition towards recovery since the Government of National Unity and the Eastern Front signed the Eastern Sudan Peace Agreement on the 14 October 2006. While tensions along the Eritrean-Ethiopian border have eased, there remains potential for conflict to escalate at short notice resulting in further population movement. According to UNHCR weekly average of 150 asylum seekers principally from Eritrea at one of the twelve official camps, one in Gedarif and eleven in Kassala.

During 2006-2007 the main health concerns affecting the health of the people of East Sudan were severe flooding in 2007 which affected over 57,000 people, outbreaks of communicable diseases especially acute watery diarrhea (AWD)/cholera, high malnutrition rates and poor water and sanitation. In 2006 and 2007 there were outbreaks of malaria, dengue fever, meningitis and AWD/cholera. The most significant outbreaks were those of AWD/cholera experienced in both 2006 and 2007: around 4,000 cases of AWD/cholera and 150 deaths were reported over the 2 outbreaks.

Efforts to control and contain these outbreaks were made more challenging by the inaccessibility to the affected areas, limited human/ technical and financial resources in the state, inconsistent and inadequate chlorination of water, cross-border commercial activities with Ethiopia, overcrowded mobile markets, poor hygiene and sanitation and limited/ non-availability of implementing partners in the state.

The region has 46 hospitals, 406 PHC facilities and 316 dispensaries and UN agencies and NGOs (International and National) provide primary health care (PHC) and nutrition services to IDPs through 7 health facilities in the camps. According to the Sudan Household Survey 2006, the coverage of children (12-23 months) fully immunized against all childhood diseases ranges between 41-57%. Maternal health is a major concern in the region. For example, the maternal mortality rate in Kassala is nearly 50% higher than the national average (see Table 7) which is already high by international standards.

Main activities and achievements

Information sharing and coordination management

Since its sub office opened in May 2005, WHO has been the lead partner assisting the State Ministry of Health (SMOH) in each state for coordination within the health sector in East Sudan. In this role, WHO brings together all health actors to coordinate humanitarian and early recovery activities, share relevant health information and as well as responding to emergency health situations in the region including flooding and disease outbreaks through regular disease outbreak preparedness and response task force meetings.

Table 7: Health indicators for East Sudan, SHHS 2006

Indicator	Red sea	Kassla	Gedarif
Under-five mortality rate (per 1000 live births)	126	81	137
Neonatal mortality rate (per 1000 live births)	37	31	43
Underweight prevalence (moderate and severe) (%)	32.4	38.4	33.8
Fully immunized children (Proportion of children 12-23 months of age currently vaccinated against all childhood diseases (i.e percentage of children receiving the DPT1-3, OPV-1-3, BCG and measles vaccinations at any time up to the date of the survey)	41.2	56.5	50.8
Maternal mortality ratio (number of maternal deaths per 100,000 live births)	166	1414	609

Access to health care

Local health workers and NGOs are the major service providers of PHC in the East. In assisting the Federal and State Ministries of Health to improve access to PHC for vulnerable populations, WHO has supported the strengthening of health services in the region including both the provision of drugs and supplies and physical rehabilitation of facilities. In terms of technical support, WHO's focused in 2006-2007 on providing technical support for planning and delivering health services at state and locality level through facility and service assessment and capacity building of health personnel.

Achievements have included:

- A major development within PHC in Eastern Sudan has been a health facility assessment that has assessed all aspects of the service and identified gaps and needs.
- At the end of 2006, WHO supported SMOH to extend coverage of health services in the region by extending services to populations previously cut off by conflict. For example the area of Hamesh Korieb, home to just under 200,000 people near the Eritrean border, has been inaccessible to health services due to internal conflicts. Whilst health partners will face huge challenges addressing the health needs of Hamesh Korieb, WHO supported the first polio campaign in 6 years in the area as well as a health assessment.
- During 2006-2007, 365 staff were trained on nutrition from community health and SMOH.
- By the end of 2007, a number of health facilities running HIV/AIDS activities were functioning. There are currently three VCT centres in Kassala town and Halfa rural hospital and the police hospital has started conducting HIV/AIDS activities in Kassala State.
- In 2007, WHO has supported the establishment of village health communities which allowed more engagement of communities in the delivery of health services.

Ongoing challenges for health service delivery in East Sudan include a weak capacity owing to the lack of training, equipment and supplies and lack of adequate infrastructure particularly in rural areas. The region is at high of communicable disease outbreaks which poses additional strain health services already suffering from shortages. Key health concerns continue to be maternal and child mortality and morbidity as well as the burden of disease from TB and a growing prevalence of HIV/AIDS.

Communicable disease control

Communicable diseases remain the leading cause of morbidity and mortality in Eastern Sudan. However, the risk of these particular diseases is high because of the precarious circumstances in which IDPs and refugees live

WHO's response to floods in 2007

Severe flooding affected over 57,000 people in East Sudan in the summer of 2007. WHO's emergency response to the flood-affected population illustrates its 3 pillar-approach:

Information and coordination: In response to the floods, WHO took the lead in establishing a task force to share regularly updates. on the prevailing emergency situation in terms of localities and populations affected and emerging health risks. The task force also made decisions to coordinate actions between health partners

Health services: In East Sudan, the flooding impacted upon health services both in terms of physical impact on health facilities and health personnel thereby reducing access for the affected population, and increasing the demand on health services like treatment of injuries and control of diseases. WHO worked with health partners to ensure coverage of health services to flood-affected populations through mobile and fixed clinics.

Communicable disease control: Responding to the clear threat to health from increased transmission of water- borne and vector-borne diseases, WHO and its partners provided essential drugs, medical supplies and equipment to reinforce disease surveillance and monitor the health condition of the populations affected. WHO provided cholera kits and essential medicines as well as technical support to CTCs playing a key role in treating the AWD cases which was reflected in the decreasing mortality rate observed. WHO also provided insecticides and water testing kits.

Challenges and hopes in Hamesh Koreib

For 6 years the area of Hamesh Korieb near the Eritrean border in Kassala State was cut off from the humanitarian community owing to internal conflicts. Now it has opened up once again. Among the many humanitarian concerns for the population, the health of the conflict-affected populations, has been identified as one of the key areas requiring an urgent response by partners.

For example, the one hospital in the area is in continued need of laboratory equipment and medical supplies. There are no obstetrics or gynaecological services available and EPI coverage is low.

WHO and health partners in East Sudan face huge challenges addressing the health concerns of Hamesh Korieb. Already, the first polio campaign in 6 years has been conducted in the area and WHO have successfully performed a rapid health assessment of the area. Health partners plan to support water and sanitation activities and, along with SMOH's plans to train midwives, vaccinators and other health workers.

living, in either IDP camps or settlements. Over 2006 and 2007 Eastern States have experienced outbreaks of malaria, dengue fever, AWD/cholera and meningitis. WHO, in cooperation with other agencies, takes a leading role in assisting health partners in the region to improve disease surveillance, and outbreak preparedness and response, further playing the lead coordination role in the overall response when outbreaks occur.

During 2006-2007, WHO conducted a review of the surveillance systems for communicable diseases in all three eastern states. In 2007, WHO supported the expansion of 27 new reporting sentinel sites to cover conflict-affected areas and the training of 82 heath staff to support the new sites. At the end of 2007, there were 150 reporting sites across East Sudan which contributed to the weekly epidemiological bulletin.

WHO supported and coordinated response to outbreaks of dengue fever, AWD/cholera and meningitis. During the 2007 AWD/cholera outbreak in Gedarif, WHO provided human resources to support case management in cholera treatment centres (CTCs) and to provide supervision and technical support to SMOH for strengthening the link between health and environment and focusing on disease prevention disease by control of water quality and vector control. WHO-supported activities included:

- **Coordination**: Joint task force meetings organised by SMOH, WHO and other health partners regularly assessed the situation, decided upon a coordinated intervention and monitored all suspected cases. Over 90% of rumoured cases were verified by the rapid response team of SMOH within 24 hours.
- **Prepositioning of drugs and supplies:** All supplies for outbreak investigation and response were pre-positioned in all high risk areas.
- **Close monitoring of all reporting sentinel sites to report on daily basis:** WHO team collected information, analyzed epidemiological data, and maximized the level of preparedness for responding to urgent requirement of any assistance concerned with health working with key partners.
- **Case management:** WHO supported the establishment of 10 CTCs in Kassala and provided 100 tents for 94 CTCs in Gedarif State for case management in remote areas. 460 health personnel were trained in surveillance, rapid response, case management and water quality testing. All health facilities in the affected areas had at least 4 trained health personnel for case management. Through the provision of cholera kits and establishment of CTCs, over 85% patients diagnosed were treated according to standard treatment guidelines.

In 2006-2007, over 3200 health personnel were trained including medical doctors, medical assistants, nurses, laboratory technicians, public health officers and statisticians in communicable diseases, surveillance system, case management, water quality and sanitation and rapid response to outbreaks as well as receiving disease-specific training. WHO, in

partnership with key health partners also provided technical support for water quality monitoring and chlorination activities.

Continuing challenges and future priorities

The region remains at high risk of natural and manmade emergency. While tensions along the Eritrean-Ethiopian border have eased there remains for potential for conflict to be resumed at short notice. Many parts of East Sudan continue to be difficult to access and negatively impacted by overcrowding and poor sanitation. There has been an increase in the number of malaria cases in all three eastern states in 2006 and 2007, possibly due to excessive flooding. Maternal and child mortality and morbidity present ongoing challenges as do morbidity from TB, HIV/AIDS, leishmaniasis and bilharzia. Routine immunization coverage is also low and needs more support in reaching the local level especially in post-conflict areas.

Eastern Sudan is now at growing risk of hemorrhagic fevers. The increasing presence of mosquitoes within new areas in the region, together with existing population movement, especially to and from South Kordofan, is increasing the risk of spread of yellow fever to the Region. Endemicity of dengue fever is also increasing.

The main objective of WHO's activities in East Sudan in 2008-2009 will be to strengthen communicable disease control and improving access to PHC services.

Activities will ensure that vulnerable and conflict-affected populations are covered within the disease surveillance system, as well as those living in flood-prone areas. Pre-positioning of supplies and capacity building in emergency preparedness, outbreak control, surveillance and response, as well as environmental health interventions will allow health actors to respond effectively and in a timely manner when outbreaks and other health emergencies occur. Health services will be strengthened for vulnerable communities through improved coverage, quality and timeliness particularly for women and children, and HIV/AIDS-affected populations.

Donor contributions in 2006-2007 supported WHO to train over 3200 health personnel in communicable disease in East Sudan

Action on the ground

WHO supported SMOH to respond to outbreaks of dengue fever and meningitis in 2006 and 2007 through support for:

- Training medical doctors, medical assistants and statisticians from all three eastern states in surveillance and case management. 455 and 365 health professionals respectively were trained in dengue fever, and in meningitis surveillance and case management

- Active case search and health education campaigns for 'at risk' communities, as well as in dengue fever affected areas, vector surveillance and control measures including providing deltamethrine to health partners to initiate insecticidal spray campaigns
- Vaccination of over 130,000 people against meningitis
- Support for state public health laboratories to ensure timely and accurate diagnosis
- Participating in high level meetings at SMOH and offering technical advice on establishing a functional referral system and on health education activities

WHO will continue its focus on establishing, expanding and strengthening the highly successful Darfur-wide EWARS in the East. WHO will also support the activities of health partners in the coordination, control and management of environmental health factors.

In particular, WHO will focus on

- laboratory strengthening to be able to detect and monitor diseases effectively
- Advocating for sustained chlorination to control of AWD/cholera WHO will be supporting VCT services, free ART treatment, awareness-raising activities especially in conflict affected areas
- Strengthening nutrition interventions through the Minimum Nutrition Package.

In 2006 and 2007, WHO's programme in East Sudan was funded by the Italian Co-operation, the Common Humanitarian Fund, ECHO, and the Government of Finland

5. 4 Transitional areas: South Kordofan and Blue Nile State

The transitional areas of Sudan include South Kordofan State, the Abyei area and the Blue Nile region in the East of the country. Combined they have an estimated total population of nearly 5 million. These regions have been dubbed 'transitional areas' because they are geographically located on or close to the boundary between North and South Sudan, and as such are politically divided between the Government of Sudan (GoS) and Government of South Sudan (GoSS).

During the 6-year interim period defined by the Comprehensive Peace Agreement between North and South Sudan, the transitional areas are governed alternately by the 2 administrations until a referendum will decide the political future of each state. This system has important implications for the continuity of health services in these regions. For example, in South Kordofan State there are currently 2 existing systems which include fee-based health services in the areas governed by the former Government of Sudan and free health facilities in the SPLM areas. Health care facilities in transitional areas will also face new challenges, as increasing numbers of IDPs return or pass through on their journey to the South of the country. Since return began in 2004, over 383,000 people are esimated to returned to their homes according to UNMIS.

In transitional areas, WHO provides assistance through both humanitarian and early recovery activities in health.

Table 6: Estimated returns to 3 areas, 2004—2007, UNMIS 2008

Area of return	2006-2007	Total 2004-2007
South Kordofan	220,500	290,500
Abyei	39,000	60,000
Blue Nile	32,800	32,800
All areas	292,300	383,300

[6] UNMIS 2008

Table 7: Health indicators for South Kordofan, SHHS 2006

Indicator	Value
Under-five mortality rate (per 1000 live births)	147
Neonatal mortality rate (per 1000 live births)	48
Underweight prevalence (moderate and severe) (%)	28.1
Fully immunized children (Proportion of children 12-23 months of age currently vaccinated against all childhood diseases	37.3
Maternal mortality ratio (number of maternal deaths per 100,000 live births)	503

On the Ground

WHO provides an important link between Federal and State Ministries of Health, the UN system and NGOs and INGOS working in the field. In Transitional areas in particular, they play a key role in encouraging dialogue and the integration of programmes and policies put forward by the different administrations operating in these regions. This harmonization process is strengthening preparedness and response to health emergencies and coordination of health services.

WHO's preparation and response to flood-related outbreaks

Flooding significantly increases the risk of outbreaks of vector-borne diseases such as malaria, and water-borne diseases including AWD/cholera. When floods occur, WHO, responds through:

- **Water treatment**: WHO provides partners including WATSAN with chlorine and deltametrine to immediately treat public waterways
- **Water monitoring:** WHO mobilizes microbiological testing kits for continuous monitoring of drinking water quality
- **Vector control**: WHO supports partners to clear pools of stagnant water are in high risk areas, and undertake spraying to reduce malaria-carrying mosquitoes
- **Protection:** WHO donates Long-Lasting Insecticide Nets (LLIN) to FMOH to be distributed to NGOs. When requested, WHO assists with direct distribution.
- **Essential drugs and supplies:** WHO provides drugs and supplies to fill gaps in service delivery

- **Laboratory strengthening**: WHO provides equipment and training to carry out assessments
- **Capacity-building of health workers:** WHO provides training for health workers in identification and management of cases
- **Coordination of information:** WHO coordinates information flow during and outbreak, including checking rumoured cases

5.4.1 South Kordofan State

The South Kordofan State includes the localities of Abyei Area, and covers a population of almost 4 million people. WHO programmes operate out of the field office in Kadugli, which was established in August 2005. In May 2006, an outreach team was also deployed to the vulnerable Abyei and Kauda Areas.

Situational analysis

South Kordofan forms part of the so-called transitional areas and is politically and geographically divided between the Government of Sudan (GoS) and the Government of South Sudan (GoSS). The 2005 Comprehensive Peace Agreement (CPA) recognized the special needs and status of the region in specific protocols.

Under the terms of the CPA, South Kordofan was designated a transitional state in a new power-sharing arrangement and sees shared responsibility for the health of the population alternating between GoSS and GoS on an annual basis throughout the Interim Period. The arrangement will be in place throughout this period until a referendum in 2011 determines the final status of the state. As in other transitional areas, this power-sharing arrangement has particular implications for the health sector which is in effect comprised of 2 distinct health systems.

South Kordofan State is continuously at risk of flash floods, potential outbreaks of conflict, particularly around the Abyei area and influxes of IDPs, particularly from Darfur. Responsibility for health in the region is divided between the State Ministry of Health (SMOH) and, in former SPLM areas, the Secretariat of Health (SOH). Supporting collaborative and harmonized policies between these two administrations has been a priority in 2006 and 2007.

The region's health situation is characterized by high rates of fertility and mortality, coupled with a high prevalence of communicable diseases and malnutrition, which are the main causes of death. Maternal mortality in South Kordofan is 503 per 100,000 childbirths compared to 509 in North Sudan according to the Sudan Household Survey for 2006. Health needs are aggravated by significant population movements, and by the return of IDPs which has increased demand for health services and disease burden. According to UNMIS, nearly 300,000 people are estimated to have returned to South Kordofan from 2004-2007.

Health care facilities are facing new challenges as increasing numbers of IDPs return either to the region or use the area as a transit point to the South of the country. In South Kordofan, there are 371 functioning health facilities and 15 hospitals. An estimated 50-60% of the population has access to primary care services (PHC). Less than 40% of women receive antenatal care from a trained provider and fewer than 5% of births take place in a health facility. The 2006 Sudan Household Survey found that only 37% of children (aged 12-23 months) were fully vaccinated against all childhood diseases. Despite the initiatives of a small number of organizations, information on the health situation is vague and incomplete.

In 2007, South Kordofan experienced the worst flooding for decades with just under 1,400 households affected in the floods. WHO responded to the emergency through coordination of health interventions, provision of essential drugs and medical supplies and supplies for vector control and deployment of staff.

Main activities and achievements

Information sharing and coordination management

Since 2006, WHO has co-chaired all coordination meetings with SMOH which includes representatives of all NGOS and agencies including local partners working in health and nutrition. Coordination meetings are providing a crucial forum within which the two administrations governing the region, SMOH and, in former SPLM areas, SOH can foster dialogue and mutual support, and cooperation in order to improve health services.

WHO is also working to facilitate the integration of the two health authorities in South Kordofan state in terms of health policy. In particular, they initiated and facilitated discussion between the SMOH and SOH regarding standardization of health personnel training and incentives in order to enable better distribution of qualified health personnel. In addition, by assessing the current health system, WHO is facilitating and assisting FMOH and SMOH and their partners to develop and establish a common health policy for South Kordofan. In

2007, agreement has been reached on common training curricula for nursing.

Capacity building

Over 2006 and 2007, WHO supported training sessions and regular refresher sessions with health workers from SMOH, SOH and partner NGOs on surveillance, identification and management of communicable diseases and health information systems. In 2006, WHO supported the training of 30 health workers from 9 localities on the health information management system for nutrition, communicable diseases, and reproductive health. In 2007, 109 health personnel in 9 localities were trained on disease surveillance, outbreak response, including emphasis on case definition and management on AWD/cholera, meningitis and avian influenza by SMOH and WHO.

Access to health care

In response to flooding in July 2007, WHO provided essential drugs and medical supplies to flood affected areas in the state as well as pre-positioning in 9 localities including Kauda. 15 health units in Kadugli received health kits which included drugs, and medical supplies and equipment to benefit about 75,000 people including returnees. WHO also supported the health response following destruction of Umdara village due to a fire and the severe flooding in 5 localities in 2007.

WHO provided technical and logistical support to the national polio programme. In 2006-2007, WHO supported 5 rounds of national immunization days (NIDS) campaign against polio with the target population reached.

In cooperation with SNAP, WHO facilitated VCT training of HIV/AIDS counsellors and medical doctors in 2007. There are currently 3 VCT centers in the state which include 2 in Kadugli and 1 in Dilling locality.

During 2007, consultations have taken place between health partners, including UN agencies and NGOs and 15 communities as part of planned community-based initiatives for health development of the Integrated Community Rehabilitation and Development programme. The programme will be piloted in the 2 localities of Kadugli and Lagawa benefitting approximately 45,000 people, as well as 20,000 returnee population.

Communicable disease control

Communicable diseases remain the leading cause of morbidity and mortality in South Kordofan where yellow fever is endemic. Establishing effective early warning systems, strengthening preparedness and outbreak response systems for communicable diseases is crucial, owing to its risk of flooding, the region is susceptible to outbreaks of water-borne and vector-borne diseases including AWD/cholera. Over 770 cases of AWD/cholera were reported in South Kordofan in 2006 in an outbreak affecting large areas of the country. In 2007, no cases of AWD/cholera were reported despite extensive flooding: strengthened preparedness, disease surveillance system and cooperation amongst partners are considered to have contributed to this positibe outcome. In addition to preparedness, WHO has provided logistical and technical support for interventions to control outbreaks of communicable diseases including AWD/cholera, yellow fever and meningitis.

WHO has also actively involved in the investigation of suspected cases of communicable diseases at the local level. For example, in 2007 WHO investigated cases of haemorrhagic fever in Belegna village in Kadugli locality following which, 200 households were fumigated and an additional 130 returnees were vaccinated against yellow fever.

Strengthening disease surveillance systems and the control of infectious diseases continued to be priority concerns in 2006 and 2007. Activities included:

- Logistic and technical interventions to control outbreaks of communicable diseases including AWD/cholera, haemorrhagic fevers including dengue and yellow fever, and meningitis including the establishment of state task forces, with wide representative from health administrations, implementing health partners, media, and UN agencies
- Provision of chlorine powder, 800 mosquito nets, IV fluids and other medicines and medical supplies to SMOH and health partners for response to disease outbreaks
- Support for 100% follow up of all suspected cases of communicable diseases along with SMOH, through field visit and investigation
- Re-establishment of 19 sentinel reporting

sites, of which 14 are currently fully functional and sending reports weekly

- Training of 188 health personnel including medical doctors, medical assistants, nurses, public health officers and community health workers in 3 localities in surveillance, outbreak response and standard case management of avian influenza, meningitis and AWD/cholera.

In 2008, WHO is be working to strengthen the disease surveillance and response system through the establishment of more sentinel sites with SMOH, and training for health personnel as well as pre-positioning of drugs and supplies.

In 2006 and 2007, WHO's programme in South Kordofan was funded by the Italian Cooperation, the Common Humanitarian Fund, ECHO, and the Government of Finland

5.4.2 Abyei Area

In May 2006 WHO established an outreach team, consisting of one international and one national staff in the Abyei area.

With a population estimated at around 135,000 people, the area of Abyei within South Kordofan State is particularly vulnerable and unstable owing to its geographical location on the boundary between North and South Sudan. In 2006-2007, UNMIS estimates that 39,000 formerly displaced people have returned to Abyei. WHO estimates that 2,600 households, affected by flooding in 2007 in adjacent regions, moved into the area. In 2008, around 25,000 to 35,000 people are expected to return to Abyei, with approximately 15,000 expected to start returning in the first quarter of the year.

Insecurity in the area and the lack of basic services, including roads, water access and education, discourage health workers from settling in the area. The risk of communicable disease outbreak and escalation of conflict in the area is high.

There is no health care system operating in Abyei. There are currently 6 functioning health units and health services that do exist consist of an adhoc and poorly coordinated network of health services. PHC services are estimated to cover only 20% of the population: without an expansion of health services, this figure is expected to further decrease as IDPs and refugees return to the area. 80% of services are provided by international NGOS, scattered in various villages and operating through static health units of mobile clinics. The Abyei Government Hospital lacks qualified medical staff and financial resources. During 2006, MSF Swiss took over the management of the hospital in order to provide much needed secondary health care services.

Information sharing and coordination management

The WHO outreach team has become a focal point for effective communication and coordination between NGOs and others providing health services in the area. During 2007, WHO established for the first time, a sector-wide coordination mechanism in Abyei before which adhoc projects were being implemented by individual agencies. This process is beginning to address the inequitable distribution of health services. Using this mechanism, WHO, through the support of its partners, is able to identify and take action on the unmet health needs of the population.

Access to primary health care

WHO supported local NGOs with basic health kits, medicines and training in particular the· Meding Achweng health unit serving approximately 15,000 people. WHO provided 200 mosquito nets to vulnerable groups discharged for the Abyei hospital. Further support has consisted of the training of 4 health personnel in EPI vaccination for expansion of EPI services.

Communicable disease control

WHO has been working to establish effective early warning and outbreak response systems, in particular identying sentinel reporting sites and pre-positioning essential drugs and supplies. In 2007, WHO has supported the establishment of 5 additional sentinel reporting sites and the training of 21 health workers on dis-

ease surveillance including AWD/ cholera and meningitis.

Within immunization, WHO provided logistical, technical assistance and human resources support to NIDs campaign targeting areas with high number of returnees including an emergency polio campaign which reached 8000 people. WHO staff also formed part of the investigation team who successfully controlled a measles outbreak which occurred in February 2007, through a month-long immunization programme covering 7400 people, including returnees.

Continuing challenges and future priorities

The South Kordofan Region and in particular the Abyei Area continue to be at risk of natural and manmade emergency and to face significant challenges in terms of health care delivery. There is an ongoing shortage of information and human resources, and incentives are needed to encourage qualified health staff to work in the region, particular in eastern areas. The lack of financial resources within local health authorities to support salaries, training and response to health situations in terms of materials, logistics and even manpower and supervision to health units has made local actors heavily reliant on external assistance.

The largest challenge facing South Kordofan is the presence of the 2 health authorities with low as well as differing levels of financial and technical capacity. Whilst SMOH receives qualified technical people and resources coming from central level, SOH, the health authority operating in the former SPLM areas, relies mostly on health volunteers and lacks technical capacity owing to protracted conflict.

WHO will continue to support capacity building activities and standardization of training protocols for health personnel for progress to harmonize the 2 health systems and to improve the coverage and quality of health care delivery in selected hospitals. WHO will facilitate more interaction and exchange of health information between SMOH and SOH, through policy meetings, joint field visits to health facilities and joint training sessions. Expansion of the disease surveillance and response system and the identification of additional sentinel sites, particularly among local NGOs, will also be an important priority. WHO will be supporting capacity building of management teams in HMIS and sector management.

WHO will also be assisting flood-affected and conflict-affected population and other vulnerable populations through improved access to PHC including expanded programme of immunization, antenatal care, family planning and emergency obstetric care coverage. WHO is working with health partners to ensure access to health care for returning IDPs and refugees by providing supplies and technical support for health facilities within high areas of return.

5.4.3 Blue Nile State

In 2006 an outreach team was deployed to focus on health issues in the Blue Nile region. Operations are run from Damazin town and the Central WHO Office in Khartoum city. Over 33,000 IDPs have to returned to Blue Nile State in 2006-2007 (UNMIS 2008).

Situational analysis

Blue Nile State has been affected by conflict over recent history and is at high risk of severe flooding for at least 5 months of the year. Many regions are rendered inaccessible by floods and also by mines remaining from conflict. As a result the health system is underdeveloped and humanitarian efforts face considerable challenges. In July 2007, severe flooding affected over 5,000 households destroying

Table 8: Health indicators for Blue Nile State SHHS

Indicator	value
Under-five mortality rate (per 1000 live births)	178
Neonatal mortality rate (per 1000 live births)	58
Underweight prevalence (moderate and severe) (%)	36.5
Fully immunized children (Proportion of children 12-23 months of age currently vaccinated against all childhood diseases	58.8
Maternal mortality ratio (number of maternal deaths per 100,000 live births)	515

850 houses in the state and adversely affecting 5 health facilities.

The total population of Blue Nile state is 845,000 and it is expected that some 50,000 IDPs and refugees will return to the area in 2008. There are at present 173 functional health facilities in the state, including 11 rural hospitals and 5 urban hospitals. SMOH covers health care provision in the 4 localities of El Damazine, Rosseiress, Baw and Geissan. INGOS provide all health services in other localities, mainly through mobile teams. Access to health care is poor; only 40% of the population have access to quality PHC and immunization coverage is around 60% for the whole state. In the underserved area of Kirrmuk, 70% of health services are being provided by INGOs for population of 200,000.

Malaria, leishmaniasis and schistosomiasis are endemic in the area. Only 43% of children under five are sleeping under LLIN and only 24% of health facilities are reporting regularly on communicable diseases surveillance. The long-term conflict and presence of armed forces and displaced populations have increased the risk of HIV/AIDS. Poor drainage systems, inefficient waste management and a lack of institutional water chlorination increase environmental health risks.

Main activities and achievements in 2006-2007

Information-sharing and coordination management

In 2007, WHO Sudan has initiated and co-chaired health coordination meetings co-chaired by SMOH with the attendance all health partners operating in Blue Nile. To improve health sector coordination, WHO, SMOH and partners have used a participatory sectoral approach to planning and with stakeholders and sector partners to share their work plans, priorities and concerns. A synchronized master plan for the health sector was successfully developed on a quarterly basis. In 2007, a disaster watch network was activated by WHO by connecting MOH, local active NGOs, UN agencies and the Ministry of Interior. This enabled agencies to share information and response strategies during the early stages of an emergency. This was particularly important during the floods and storms that affected 5,000 households in July 2007.

Access to health care

WHO led a comprehensive health facility assessment with SMOH, UNICEF, the Multi Donor Trust Fund Consortium, International Red Cross, CFCI and Goal in June 2007 the results of which will form the basis for a comprehensive HMIS in the state. 198 (95%) health facilities were visited by assessment teams, including facilities on routes travelled by returnee IDPs, of which 173 were found to be functional.

In 2006, WHO has supported blood banks in the State through the provision of HIV/AIDS testing kits, the establishment of VCT and HCT services through training on HIV/AIDS testing, and ART within hospitals through the provision of drugs. In 2007, WHO's community-based health interventions focused on raising the awareness of youth of HIV/AIDS through the training of 32 community volunteer trainers to conduct peer education.

In 2007, WHO supported revitalization of the National Leprosy Programme in Kurmuk through surveillance, service assessment, training and medical supplies. With its partners, WHO has also supported the establishment of a TB ward through providing laboratory equipment and essential drug supplies. WHO has provided support to strengthen 2 laboratories, ahead the rainy season, through provision of equipment and capacity building. WHO is also training health professionals from 2 rural hospitals in emergency surgical care.

As part of joint agency efforts, WHO is assisting returning IDPs and refugees through medical screening, treatment and vaccination. In Blue Nile, in 2006 and 2007, more than 13,500 refugees were assisted to return from Ethiopia, while an additional 30,000 may have returned spontaneously.

Communicable disease control

In 2006, WHO provided technical support and supplies for a reactive vaccination campaign against meningitis conducted as well as training of health care professionals in case management of the disease.

In 2007, WHO provided essential drugs and medical supplies to flood-affected areas, prepositioning IV fluids, PHC kits, chemical clinical laboratory kits and insecticides to cover all the directly population and 85% of the population at risk of water-borne and vector-borne

communicable disease. WHO supported training sessions for health personnel from SMOH and other partner NGOs on communicable disease control, AWD/cholera preparedness WHO also supported the installation of HMIS with training of 53 health personnel and procurement and delivery of 7 HF Radios for early warning systems to all Blue Nile localities .

Continuing challenges and future priorities

Operations in Blue Nile State are still in their early stages. Therefore priorities for the coming biennium will be developing the emergency contingency plans for the area, mobilizing resources, building capacity and installing effective health information and disease surveillance systems Support for returning IDPs and refugees will also present new challenges.

Planned activities for 2008-2009 include:

- Coordinating the expansion of donor-sponsored PHC services operated by NGOs, SMOH and UN agencies in the remote area of Kurmuk with a particular focus on returning IDPs
- Rehabilitation of flood affected health facilities.
- Developing a regional plan for the health sector in Blue Nile State in order to map gaps and opportunities, and mobilize resources.
- Expanding sentinel centres under the disease surveillance and outbreak control programme
- Implementation of two VCTs at Damazin and Roseeiress hospitals and refresher training on effective HIV/AIDS management for health personnel
- Training of laboratory technicians and engineers on laboratory operation

In 2006 and 2007, WHO's humanitarian and early recovery programme in Blue Nile was funded by the Common Humanitarian Fund

5.5 IDPs in Khartoum State

Situational analysis

The United Nations Mission in Sudan (UNMIS) estimates that 1.9 million formerly displaced people have returned to their origin, mainly from Khartoum state to the South and transitional areas during 2004-2007[7]. While some IDPs have also opted to stay in their place of displacement including the 4 camps and 30 informal settlements of Khartoum, agencies working on the ground continue to observe population movement in both directions according to seasonal factors and employment opportunities. A population census of the country scheduled to take place in 2008 will provide a clearer picture of resident population.

Conditions in both camps and 30 informal settlements are characterized by poverty, marginalization, lack of basic facilities, and lack of sustainable livelihoods. Efforts to improve conditions have been complicated by restrictions on access, repeated police raids, forced relocations, and the demolishment of shelters in settlements.

Some IDP areas are served by NGO clinics or community health centres, however there remain considerable gaps in coverage. The WHO Sudan project for IDPs in Khartoum was initiated during July/August 2005, following a recommendation from the Special Representative of the UN General Secretary (SRGS) in Sudan. The overall aims of the initiative are to increase the health coverage and improve the quality of health care for IDPs in Khartoum State and to ensure the continuity of health provision to IDPs and vulnerable communities dependent on temporary health centers set up by NGOs.

WHO is also working with the International Organization for Migration (IOM) to prepare and protect the health of IDPs planning to leave their camps and return to their areas of origin.

Main activities and achievements

During severe flooding in 2007 that affected in Khartoum and Northern States, WHO supported FMOH in undertaking a coordinated response which included overall health sector coordination, strengthening disease surveillance and outbreak preparedness, sustaining essential drugs and supplies and deployment

of public health to affected areas.

Information sharing and coordination management:

In January 2006 WHO and the International Organization for Migration (IOM) signed a letter of understanding and initiated a joint Return, Re-integration and Recovery programme for IDPs. In March 2006 a medical unit located within the IOM Offices was introduced to facilitate collaboration.

In preparation for Khartoum IDP return operations, a coordination committee was formed in November 2006 with FMOH taking a lead role.

Information was shared and activities coordinated at ground level through regular institutional meetings, and ad hoc visits. In 2007 WHO played a key role in policy making for the return process by advocating for and providing support for vaccination against yellow fever for IDPs returning to South Kordofan and South Sudan.

Access to health care:

In 2006, health facilities in Khartoum IDP camps were assessed with the objective of determining the health status of the IDPs and to identify health gaps, which may have negative impact on the health of IDPs prior their return. In 2007, over 21,000 returnees were screened pre-departure in Khartoum as part of the joint programme with over 13,000 vaccinated, 1.,500 treated for medical condition and 100 referred for treatment.

Assessments to determine the needs of health facilities *en* route were also carried out

A Masters in *Community Reintegration and Leadership* Development was established at Shendi University targeting senior and mid-level programme managers from different sectors, UN agencies and NGO workers. The Masters will focus on issues such as population movement from conflict-affected areas, and the re-integration of returnee IDPs.

Communicable disease control

Workshops on communicable disease surveillance and water sanitation were carried out with SMOH staff working in IDP camps and settlements. WHO supported awareness-raising and contingency planning focusing on the 4 official IDP camps. Task force activities focused mainly on health education and sanitation.

WHO and IOM supported the FMOH in the control of AWD/cholera outbreaks in various parts of Sudan. While WHO took a lead role in the coordination of the AWD/cholera outbreak control providing medical supplies, building capacity and strengthening surveillance system IOM provided logistical support and further technical assistance

Malaria control and prevention was implemented by health sector partners through provision of long-lasting insecticide- treated nets (LLITN) to pregnant and lactating women and children under-five years of age; provision of recommended new anti-malaria combination therapy for effective malaria treatment and equipping of laboratories.

Continuing challenges and future directions

Problems of insecurity, restricted access, poor sanitation and widespread malnutrition persist in IDP camps in Khartoum State. In general, recent mapping of health facilities suggested that IDPs have reasonable access to primary health care with 20 functioning health facilities, most supported by local and international NGOs . However, there are important gaps in the capacity of some health facilities to manage and/or refer chronic medical conditions and even in emergencies, patients must arrange private means of transportation to hospitals. Initiatives to improve the health of IDPs in Khartoum State is still in its early stages, and need increased support to expand activities. WHO's priority activities for 2008 and 2009 include:

- Capacity building activities for health personnel in logistic and disaster management

Way stations aim to provide basic services and facilities to returnees in transit. Services include water and sanitation, health referral services, cooking facilities and temporary shelters for a maximum stay of 72 hours. Way stations are managed by IOM and UNICEF is the key implementing partner. They are built at strategic locations and close to health facilities where referral system is easy to establish with the support of NGOs. There are currently 3 operational way stations in Bentiu, Wau and Warawar.

- Service and gap mapping through a thorough assessment of all health facilities serving IDPs; bringing together the different agencies working in the area and mobilizing resources.
- PHC interventions will focus on safe motherhood interventions to increase access to antenatal care, STI management, quality basic and comprehensive obstetric care and will use the IMCI framework to protect child health.
- Rehabilitation and construction of basic health units, health centres and outreach services for Khartoum's IDPs, returnees and refugees by providing essential drugs, medical supplies and equipment.
- Expansion of disease surveillance system and providing emergency medicine stocks for AWD outbreaks and training laboratory technicians and health workers in AWD/ cholera diagnosis and case management.
- Vaccination campaigns against yellow fever and meningitis for returnees
- Continued assessment of way stations and support for the RRR programme
- HIV/AIDS awareness-raising and prevention interventions.
- Technical support for nutrition interventions including a therapeutic and supplementary feeding programme focusing on IDPs in Khartoum.

Return, re-integration and recovery programme

In January 2006, the International Organization for Migration (IOM) and WHO signed a letter of understanding focusing on health assistance to IDPs during return and re-integration operations. Activities within the programme include:

- Assessing the health status of volunteer returnees and providing treatment vaccinations where necessary through medical kits
- Assessing health facilities both in camps and *en route*
- Supporting PHC in IOM 'Way Stations', through health partners
- Providing medical escorts for the journey
- Mapping specific health risks endemic along main routes for early detection and reporting of disease outbreaks during the return process
- Providing information to returnees about the health risks
- Identifying skilled IDP health workers in Khartoum IDP camps and supporting their return and reintegration

In 2007, WHO provided medical kits to the IOM Migration Health Unit to conduct medical screening of over 21, 000 IDPs leaving Khartoum as part of the organized return programme, as well as treatment of 1,000 people. 530 people were supported by a medical escort on their return journey. While IDPs and refugees with minor medical conditions were treated on the spot in the departure centres, those with significant medical conditions were referred to hospitals through a negotiated pre-departure referral system. A total of 209 IDP health workers were registered on the RRR programme.

In 2006 and 2007, WHO's programme in Khartoum & Northern States was supported by the Common Humanitarian Fund, the Italian Cooperation, ECHO, and the Government of Norway